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YEARBOOK
OF THE
OPTICAL SOCIETY OF AMERICA
1928

Issued November, 1928

This issue contains a new membership directory. All members are urged to send corrections promptly in triplicate to (1) the secretary, (2) the treasurer, (3) the business manager of the Journal.

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1924–1925

Past Presidents of the Optical Society of America
1916–1927

YEARBOOK

OF

THE OPTICAL SOCIETY OF AMERICA

1928

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ADVERTISEMENT

The Optical Society of America is now twelve years old. Owing to the circumstance that its first two years were spent amidst the turmoil of war, the heretofore published records of the history of its organization and early activities are rather fragmentary and scattered. The urgent demands of military necessity upon the time of the early officers of the society prevented their putting these matters in order as they doubtless would have done under normal conditions. The publication of the society's journal was quite irregular prior to 1920, and indeed publication was suspended entirely during the year 1918. The publication of the journal was resumed in a new form with the number for January, 1920; but, up to date, no satisfactory, systematic, routine procedure for the publication of the official records of the society—minutes of the executive council, annual reports of officers and committees, proceedings of meetings, periodical directories of membership and officers—has been adopted. Procedure has varied notably with changes of administration and, indeed, has not continued in a wholly uniform manner within single administrations. The result has been a certain undesirable vagueness of knowledge of the society's affairs among its members and officers, and a practical dearth of information for non-members who may be interested in obtaining conveniently, without diligent search, definite knowledge of the organization—its history, its purpose and scope, its activities, and its membership.

The purpose of this YEARBOOK is to remedy this situation. It attempts to collect in a systemmatic way, under one cover for convenient reference, the most important information concerning the society. It is hoped that this will render a definite useful service to the society's officers, its members, prospective members, and all who may desire to learn something of it.

Our first duty in this connection appears to be to put in print a brief but definite account of the essential facts and circumstances of the organization and early history of the society while the manuscript records are still available and can still be verified in their essential purport by the memories of those who actually took part in the society's earliest activities. I have attempted to do this in the section on "History." We are indebted to Nutting, first president of the society and later secretary (1918–1919), for the careful preservation of the records of organization and early history of the society in manuscript form, supplemented by printed programs of meetings, etc. These records were transmitted to me in good order by Dr. Nutting while I was secretary in February, 1921. In April, 1924, I had them bound in book form under the title "Optical Society of America—Early Records, 1910—1920," and transferred them to Richtmyer who became secretary *pro-tem* on my resignation April 26, 1924. I have now borrowed this book from the present secretary, and have had recourse to it in preparing the sketch of the society's history. I have also referred to *Science*, the JOURNAL, my personal files, and to a slight extent to my own memory, in verifying and slightly supplementing these manuscript records. Every reasonable effort has been made to produce an accurate account. However, it may not be as complete as might be desired, nor entirely free of error. I shall be very grateful to any and all old members who may offer corrections or suggest additions to this record, in order that a revised account may be prepared for the next YEARBOOK if that should seem desirable.

The bibliography of exact references to official notices and reports (Appendix 1) is another feature incorporated in the present YEARBOOK with the intent of putting the record of the past affairs of the society in as good order as possible. The need for such a check list has been made evident to me by my own experience as secretary and president. For several days of detail work in compiling and checking these references, thanks are due to Mr. J. O. Riley.

It should be emphasized to all members that the preparation of an accurate directory is an arduous task in which the secretary and the treasurer ought to have the earnest support and

cooperation of every member. Errors are practically certain to occur. They should be promptly corrected by sending notice to the secretary. Tardiness in the payment of dues by a few well-meaning but negligent members, who rest on the assumption that their credit is good, is the greatest difficulty with which the treasurer has to contend. *I respectfully submit to all such members that they owe greater consideration to a faithful officer who, besides giving freely of his time and earnest effort to the management of the society's affairs ever since its organization, annually makes up its deficit out of his own pocket, and modestly conceals this fact under the item of anonymous "donations" in his duly audited formal reports.*

It is hoped that henceforth, by publishing the directory annually and keeping the secretary's and the treasurer's copies continuously corrected to date we may, *with the cooperation of the membership*, produce future directories as free of errors as is humanly possible. As to the present effort, I bespeak for the secretary and the treasurer your prompt contribution of corrections without undue criticism of mistakes which may be practically unavoidable under present circumstances.

The present writer can not speak for future administrations; but he entertains the hope that the precedent now set will be followed by the regular publication of the YEARBOOK each year hereafter. He would also point out that there will be great room for improvement and amplification. The exigencies of a first attempt preclude the hope of approximating closely the ideal of what the YEARBOOK might be. Already, as we go to press, ideas of revision and amplification occur. For lack of time they can not be executed now; it is hoped that they may be realized in future editions.

A very useful feature which it has not been possible to include in the present edition would be a classified directory of members under the captions of their specialized interests and research activities in optics. This would be a great aid to the president and council in the appointment of committees. The president also occasionally receives requests to recommend qualified experts for employment either in regular positions or as consultants. The frequency of such requests will undoubtedly increase as years go by. As the membership increases it will probably be too much to expect that the president be gifted with omniscience and an infallible memory in regard to the qualifications and personalities of the members. Even if he should be personally acquainted with every member (a highly desirable situation toward which presidents ought to strive), such a printed classified directory would be a welcome aid to memory in recalling the right man for a given place. If used, it would forestall, to some extent, appointments and recommendations based solely on the accident of prior intimate acquaintance and the vagaries of memory. Moreover it would facilitate the increase of professional acquaintance among the members; it would help the "old guard" to become acquainted with the "recruits" and so would tend to forestall continued domination by elderly clans, which is ever likely to bring about senile decay.

Another (perhaps visionary) ideal, which can not be realized at once, is to include, in the second Yearbook for each administration, the assembled and unified reports of progress committees for a biennial period.[1]

[1] The organization of the committees on progress is a current problem which has not been solved. Many admirable reports have been published heretofore. Nevertheless, they are fragmentary, and, as a comprehensive survey or summary of progress in optics, entirely inadequate. It is the opinion of several members of the council that they should be discontinued. The president has proposed to the council the idea of organizing the committees in such a manner that their assembled reports would approximate a comprehensive systematic summary of progress in optics in periods of two years, the reports to be due at the second annual meeting in each administration. This proposed organization of committees is based on the "Outline of the Subject Matter of Optics" which is given in this YEARBOOK as a section under "Optics." If the enthusiasm of members can be aroused to cooperate on such a project and if funds for publication can be found, it is believed that such biennial reports on progress would be a great boon to the advancement of optical science and industry; but at present the execution of the plan is quite problematical.

It appears more or less obvious that the following items are suitable to the YEARBOOK:

Purpose and scope of the society.
Membership qualifications and dues.
Condensed history of the society (brought down to date each year).
Constitution and by-laws (as amended to date of publication).
Minutes of the executive council (since the publication of the just previous YEARBOOK).
Annual reports of the secretary and treasurer.
Address of the retiring president. (Biennially.)
Current committee reports.
Information concerning the society's journal and other publications.
Information concerning medals or other awards conferred by the society.
Lists of those honored by awards (brought down to date each year).
Directory of current officers and committees.
List of patrons.
Directories of membership.
- (a) Alphabetical (names with addresses).
- (b) Geographical (names only, classified by cities for home members and by countries for foreign members).
- (c) Professional (names with academic degrees and current professional position or employment, classified under captions showing specialized interests and professional qualifications).

Synopsis of changes in membership.
- (a) Accessions.
- (b) Deaths.
- (c) Resignations.

Numerical synopsis of membership by classes.
Directories of the officers of closely related American scientific societies (e.g., A. A. A. S., Am. Phys. Soc., Am. Psyc. Assn., Ill. Eng. Soc.).
Directories of the officers of foreign optical societies and institutes (e.g., The Optical Society in London, The Institut d'Optique in Paris.)

It is hoped that the constructive thought and industry of future officers, supplemented by time and experience, will result in greatly improving the YEARBOOK from year to year; and that, by recording more definitely and coherently, the status, affairs, business, and activities of the organization, it may enhance not only the prestige but also the usefulness of the Optical Society of America.

WASHINGTON,
JULY, 1928.

IRWIN G. PRIEST,
PRESIDENT, 1928–29

"OPTICS"

A Few Thoughts on Optics Made into a Kind of Foreword by the President of the Society[2]

I. Definition

Optics is the science which deals with radiant energy, its genesis, its propagation, the effects which it suffers, the effects which it produces, and all phenomena closely associated with it.

This is the modern, acquired, *de facto* meaning of the term "optics." In ancient times, and until the beginning of the nineteenth century, the subject matter of optics was more strictly limited by the sense of sight. The derivation of the word is from the Greek for "sight;" optics was regarded simply as the science dealing with *seeing*. To physicists before the nineteenth century, "light" was merely the "agent" by which sight was occasioned; and, although they had invented hypotheses as to the nature of light, that term had not acquired any meaning essentially transcending its significance in the first chapter of Genesis.

How then, comes the above definition, which appears so foreign to the primitive concept of "optics?" It comes as the direct and unavoidable result of the physicist's study of the "agent" which occasions sight, and his elaboration of the modern concept of that "agent." The primitive etymological definition of the word "optics" was fully consonant with the actual subject matter of the science until the year 1800 A.D. In that year and within the next, the first two small stones were pulled from under the foundation of that definition by Herschel's discovery of infrared and Ritter's discovery of ultraviolet. These domains were promptly annexed by optics, and from then on, year by year, by the march of events and the force of circumstances, the word "optics" has come to have a well recognized broader *acquired* meaning. Near the end of the nineteenth and the beginning of the twentieth century, Hertzian waves, "reststrahlen," Langley's "new spectrum," the Schumann

[2] Fairness to all concerned appears to require that the writer assume personal responsibility for the definition and views as to the scope of "optics" set forth in this "Foreword." Although this matter has been read and approved by a number of prominent members (as well as others whose opinion is worthy of respect), nevertheless, its present status is that of the writer's personal opinion rather than an official pronouncement having the formal approval of the society. As indicated in the closing paragraph of this Section, this definition of "optics" is proposed *to* not *by* the society.—I. G. P.

region, the Lyman region, x-rays, gamma rays, "cosmic" rays, the laws of radiation and the quantum theory, have been quietly and unostentatiously brought into the fold, mostly without formal announcement. Finally the last word is said in a formal manner by the publication in the Journal of the Optical Society for February, 1928, of a notable paper on "X-rays as a Branch of Optics" by the society's third Nobel laureate. It is believed that the propriety of considering x-rays as a part of the subject matter of optics will no longer be questioned in the face of this elegant and convincing presentation of the merits of the case. At the same time, it has become apparent that cathode rays, alpha and beta rays, electrons, and atomic structure are so closely related to optical matters that they are most intelligently treated in close connection with the subject matter of optics.

The preceding paragraph has pointed out how the physicist has given a new meaning to the word "optics." It does not follow that optics can be defined as a "branch of physics." Any definition which begins "Optics is that branch of physics . . . . ." must be rejected for very good reasons. A large and delightful field of optical research is admittedly concerned with vision, color, visual perception, visual illusions, etc. Color is officially held by the Optical Society to be a sensation, a psychological entity. The study of vision falls within the domains of psychology and physiology, yet vision certainly is included within optics if anything is. Many and diverse effects of radiant energy are of preeminent interest to the chemist, the biologist, and the psychologist. Many of these effects are hardly known to the typical physicist; but all are clarified and unified by the physicist's concept of radiant energy. Reverting to our definition, we must add that the effects produced by radiant energy and the phenomena closely associated with it may come under any of the usual categories of physics, chemistry, biology, or psychology. Optics has come to be the unifying science *par excellence*.

In formulating the foregoing definition, I have merely assumed the lexicographer's humble task of recording current usage. What has been said about the term acquiring this meaning is merely a matter of well known history. However, there are some avowed devotees of optics to whom our definition is unacceptable; they would limit the term to its eighteenth century meaning. They would not have the Optical Society be concerned with many subjects which their colleagues present as optics to the Optical Society. When the argument is pressed it seems to turn on a specification of limits of wave length. The pro-

ponents of the older view, if forced to frame a definition, will proscribe phenomena outside the wave length limits about 400 to 800 mμ. So to speak, they would cast the ultraviolet and the infrared into outer darkness. Let us give a moment's attention to the merits of the argument. The question is, for example in the Optical Society, shall we determine the scope of the society's activities by the etymological meaning or the acquired meaning of the term "optics." This question has more than pedantic interest; it is a question of practical import. I take the position that we ought to accept the definition which shows itself most conducive to the advancement of science; and I submit that this is the *acquired* meaning. The subject of radiation appears to possess unity; it can be most profitably studied as a unit. I shall limit myself to one exhibit to illustrate the argument. (Others will not be lacking to those who consider the subject.) The study of color must be admitted by all to be proper to the study of optics. One of the most useful tools in the study of color is Planck's distribution law, the statement of which can not be comprehended in the older optics. The field of visual psychophysics is replete with illustrations of the fact that it can not be intelligently studied nor even approached without using the concepts which are the outgrowth of the newer conception of optics. What shall we say of an optics which would limit its subject matter so as to proscribe the intelligent study of *vision*?

The academic argument against attaching to a word a meaning transcending its primitive root meaning is hardly to be taken seriously. Its uniform application would deplete our vocabulary to such an extent that we would have no language adequate to even the simplest conversation. The history of language is the history of words acquiring new meanings. We have here to do only with one case among thousands. By the natural course of events "optics" has been appropriated as a label for the science of radiation. We may as well accept the situation; and, incidentally, we may congratulate ourselves that the situation is a happy one in that, by the natural evolution of thought and science, the name of a most ancient and honorable science has come to designate a modern science which exhibits to a most remarkable degree the desirable characteristics of unity and coherence.

When one considers how little we know as to *what* radiant energy is, he may perhaps smile and say we have defined our subject in terms of the unknown. However, the *intent* of the definition must be clear to all who are at all acquainted with present-day science. It is a useful definition. It is pragmatic. It cogently defines one of the most impor-

tant fields of scientific endeavor, a unified subject, the study of which is of the utmost importance to human welfare. I commend it to the Optical Society as a definition suitable to guide it through many years of profitable endeavor and useful service.

II. An Outline of the Subject Matter of Optics

(The following outline is not proposed as complete nor as perfect in either logic or nomenclature. It is given here merely as a supplement to the definition of "optics" proposed above, in order to exemplify that definition and indicate in a general way the proper subject matter of optics and the legitimate field of the Optical Society.)

1. FUNDAMENTAL EXPERIMENTAL DATA

(Science as science. Fundamental knowledge resulting from experimental investigation. Phenomena. Laws. Relations. Constants.)

1.1 GENESIS OF RADIANT ENERGY

Incandescence. (Thermal radiation. Radiation as dependent upon the temperature of the radiator.)

Luminescence.

Hertzian radiation.

Cathode rays, x-rays, gamma rays and radioactivity.

Characteristic emission spectra of elements and compounds. (The quantitative data of spectroscopy on frequencies, wave lengths, series, etc., throughout the whole range of known frequencies for all methods of excitation.)

1.2 PROPAGATION OF RADIANT ENERGY

Velocity.

Interference (including diffraction).

Ether drift. (Michelson-Morley experiment.)

1.3 EFFECTS SUFFERED BY RADIANT ENERGY

Refraction and dispersion.

Polarization and rotation of the plane of polarization. (Including such subjects as the Faraday effect, Kerr effect, etc.)

Transmission, absorption and reflection (homogeneous materials).

Scattering. (Optics of turbid media.)

1.4 EFFECTS CAUSED BY RADIANT ENERGY

Radiation pressure.
Thermal effects.
Electric effects.
Fluorescence and phosphorescence.
Chemical effects on non-living matter.
Effects on vegetable life. (Photosynthesis, phototropism, etc.)
Effects on animal life (excluding the strictly psychophysical relations).
Psychological effects. (Visual sensation and perception.)

1.5 OPHTHALMOLOGY AND THE ANATOMICAL AND PHYSIOLOGICAL BASIS OF VISION

2. THEORIES AND HYPOTHESES

(*Interpretation, rationalization, and explanation of the experimental data. Concepts and models.*)

2.1 PHYSICAL THEORY OF RADIATION
2.2 THEORY OF VISION

3. THE SPECIAL TECHNICS OF OPTICS

(*Methods, instruments, and apparatus for conducting investigations and tests, and accomplishing desired results. How to do it.*)

3.1 TECHNICS OF PRODUCING RADIANT ENERGY

General technic of producing radiant energy by heating the radiator. (Incandescence. "Black-body.")
Special technic of practical illumination. (Practical light sources for general illumination. "Lamps.")
Special technic of producing radiant energy from gaseous conductors. ("Vacuum tubes." "Geissler tubes." "Plücker tubes.")
Special technic of producing Hertzian waves.
Special technic of producing x-rays.
Special technic of producing fluorescence and phosphorescence.

3.2 TECHNIC OF IMAGERY

(Production of images. Design of mirrors, prisms, lenses, telescopes, microscopes, etc.)

3.3 TECHNIC OF CONSTRUCTION OF OPTICAL INSTRUMENTS

Manufacture of optical glass.
Grinding and polishing.

3.4 TECHNICS OF INVESTIGATING THE EYE

Ophthalmoscopy.
Optometry.

3.5 SPECIAL TECHNICS OF OPTICAL MEASUREMENTS

Radiometry. (The measurement, absolute or relative, of radiant flux, including measurements of transmission and reflection.)
Thermoelectric radiometry. (Bolometer, thermopile, "physical photometer," etc.)
Photoelectric and ionization radiometry.
Chemical radiometry. ("Photographic" and other methods depending upon chemical reactions.)
Visual radiometry. ("Photometry.")
Optical pyrometry.
Refractometry.
Spectrometry. ("Spectroscopy.")
Microscopic metrology. (Length measurement by the microscope.)
Goniometry. (Transits, theodolites, sextants, optical levers.)
Stroboscopic measurements.
Polarimetry.
Interferometry.
Colorimetry.
Turbidimetry.
X-ray analysis.

3.6 SPECIAL TECHNICS OF METHODS OF OBSERVATION AND INVESTIGATION WHICH ARE NOT ESSENTIALLY OR NECESSARILY METROLOGICAL OR QUANTITATIVE.

Photography.
Microscopy.
General.
Biological.
Petrographic.
Metallurgical.
Ultra-microscopy.
Stereoscopy.
Cinematography.
X-ray examinations.

3.7 SPECIAL TECHNICS OF THE APPLICATION OF RADIANT ENERGY TO PRODUCE DESIRED PHYSICAL, CHEMICAL, AND BIOLOGICAL EFFECTS.

Sterilization.
Photo-activation.
Radiotherapy.
Production of "gene mutations" in cells (Muller).

III. The Services Rendered by Optics

It is probable that the fundamental importance of optics could be vividly realized only by a person born blind and given his sight after reaching maturity. We neither marvel at that which has long been familiar to us nor feel gratitude for goods which we have always enjoyed. Many optical methods of doing things and accomplishing desired ends are such an ancient heritage and so commonplace that the world is little inclined to pause and ponder them, nor regard them as much worthy of either study or admiration. Our not very remote descendants will doubtless have the same attitude of mind toward the services rendered by "electricity," which have astounded the just passing generation.

However, it is not our purpose to dilate upon the services of optics which are so well known to every man in the street that he does not even recognize them,—services which require no special technical knowledge for their conduct. It is, nevertheless, worth while to emphasize somewhat the degree to which the progress of civilization and the enhancement of human happiness depend upon a *technical* knowledge of optics,—depend upon having in the world a body of experts familiar with and able to deal with recondite matters of optics which are far removed from the commonplace knowledge and experience of the ordinary man.

Consider for a moment the advancement of knowledge in the various departments of science. In the fundamental matter of metrology, ultimate dependence is on optics not merely in the proper design and use of measuring microscopes and in the much more refined methods of interferometry, but also for the most fundamental *standard* of length which the ingenuity of man has been able to conceive,—the "wave length of light." The reliable maintenance of fundamental standards and the comparison of sub-standards with them require the services of experts in optics. The "gages" of the workshops of the world depend

upon optics. Geodesy is dependent upon the perfection of optical instruments. High temperatures are measured by optical methods, and the reliability of these measurements depends upon a mass of highly technical data of physiological and psychological as well as physical optics. Multitudes of researches in physics are dependent upon optical methods and instruments. Practically the whole structure of atomic physics is based on spectroscopy. The advance of chemistry depends in large measure on the highly developed technics of refractometry, polarimetry, spectroscopy, photometry, spectrophotometry, colorimetry, turbidimetry, microscopy, and ultra-microscopy. Crystallography is nearly all optics of a highly specialized type; and to its older optical tools has recently added x-ray analysis. In metallurgy, a highly specialized form of microscopy plays a very important role. It is a platitude to say that all we know of astronomy comes by way of optics, but not all have stopped to consider fully how the recent astounding advances of astrophysics depend upon a recondite technical knowledge of optics. It is not only that we see the stars; the technics of optics tell us their relative age, their composition, temperature, physical state, distance, size, and the direction and speed of their motions. Their distances are found not only by optical triangulation but by *photometry*. The mention of biology at once calls up a picture of the most highly developed microscopes; and the modern biologist finds radiant energy to be his most useful tool in investigating the "cells." Photography, in its infinitely diversified ways, serves all sciences in the laboratory and the field from pole to pole and to the "island universes."

Nor is optics without its title to credit of accomplishment in the utilitarian affairs of the world, in doing things that need be done and in increasing the pleasure of living. It is by the application of the technics of optics that maps are made and that the seas and the air are navigated. The special lenses in the beacons which guide the mariner are due to the optical genius of the same man whose labors contributed mightily to the theory of light a century ago (Fresnel). The colored signals which regulate traffic on sea, rail, and highway are standardized and specified by the technics of photometry, spectrophotometry, and colorimetry; and their intelligent selection is based on a technical knowledge of the color sense and the data of visual psychophysics. The invention of the ophthalmoscope and the monumental work of Helmholtz in ophthalmic optics, supplemented by the labors of his host of followers, have conferred a veritable blessing upon millions of men and women. The amelioration of the ills and defects

of vision has not just happened; it has come as the result of most intensive study and labor on very complex and difficult technical problems in optics. It is largely by the application of optical technics that diseases and plagues are studied and controlled. Here microscopy has for decades played the leading rôle. More recently have come x-rays serving both as an investigating tool and a therapeutic agent. To this add all the recent developments in radiotherapy in the treatment of various diseases. Photometry, colorimetry and turbidimetry aid in the diagnosis of disease. It is fitting to recall that these tools of the surgeon, the physician and the sanitation expert are, for the most part, the mere by-products of investigation and research in "pure" optics without being originally intended for any utilitarian purpose. The machinery of trade and commerce is controlled by optical technics. The tariff on sugar is assessed by polarimetry. Commodities of various kinds are bought and sold on colorimetric specifications, the formulation and control of which require expert knowledge of physical, physiological, and psychological optics. The paint, dye, textile, and numerous other industries call on the optical expert for aid, and there are not enough experts to serve them. Optical technic in the design of range-finders, gun-sights, periscopes, and many other instruments takes a key position in the first line of national defense.

If we consider the conveniences, pleasures, diversions and amenities of life,—modern artificial illumination, photography, photoengraving, the "movies" and, finally, the "talking movies" evidence the world's debt to the optical engineer. The art of photoengraving is due largely to a member of the Optical Society in whose honor a medal is being founded to be awarded by the society for distinguished work in optics. The researches of other members have contributed to the accomplishment of "talking movies." (The talk is reproduced by optical means.) Modern success in the production of "color movies" is due in large part to a past president of the Optical Society. And recently the world has stood in admiration at the success of another distinguished past president of the society in accomplishing the marvel of television.

IV. The Moral

Is it not fitting that more attention should be given to the cultivation of optics? Is it not desirable that it should have a more prominent place in university curricula as a cultural subject replete with human interest and stories of discovery verging on romance? Is it not necessary to the progress of the arts and sciences that more adequate provision

be made to train experts in the technics of optics,—optical engineers who would be fitted to cope with optical problems in industry as civil, mechanical, electrical, and chemical engineers deal with their specific problems? Do not the cultural and utilitarian needs of our present civilization impose upon those who would improve it the imperative duty of fostering research in optics? Finally, is it not indispensible to the full and orderly development of scientific culture that the organized science of optics take, among the major divisions of science, the prominent and exalted position to which the vast extent and fundamental importance of its subject matter logically entitle it? To these ends the Optical Society of America should devote itself.

WASHINGTON,
JUNE, 1928.

IRWIN G. PRIEST

THE OPTICAL SOCIETY OF AMERICA

Purpose and Scope

The Optical Society of America is a national organization devoted to the advancement of optics and the service of all who are interested in any phase of that science,—be it fundamental research, the manufacture of optical instruments and products, or the application of optical technics to any of various problems and purposes in science and industry. While this society pays special attention to the applications and technics of optics and so covers a field not covered by any other American organization, it is not to be regarded as a technological society in contradistinction to a society devoted to "pure" science The purpose of the society is to cover the field of optics, including both "pure research" and "optical engineering;" and it solicits the support and membership of all persons "interested in optics" whatever the specific interest may be.

The activities of the Optical Society, its meetings, and the contents of its journal will be found to be of interest and service to an extensive and diverse clientele: physicists, chemists, biologists, psychologists, ophthalmologists, optometrists, astronomers, mineralogists, artists, illuminating engineers, manufacturers, and various technologists who are concerned with the application of optical methods.

The society accomplishes its purposes largely through its meetings, the work of its committees, and the publication of its journal.

The annual meeting is held each year about the end of October and usually occupies three days. On several occasions the meetings have been supplemented by an exhibition of optical instruments. Annual meetings have been held in various places:—New York, Baltimore, Chicago, Rochester, Washington, Cleveland, Boston, Ithaca, Philadelphia, and Schenectady. The 1928 meeting will be held in Washington. In recent years it has also become customary to hold a joint meeting with the American Physical Society in New York about the end of February. Meetings are open to all who are interested.

The society's committees have dealt with standardization of units and nomenclature, progress in various fields of optics, and various specific problems.[3] One of the most noteworthy accomplishments has been

[3] See "Reports of committees . . . . ." In Appendix 1.

the translation, under the editorship of Southall, of Helmholtz's "Handbuch der Physiologischen Optik."

The journal of the society, now published with the cooperation of the Association of Scientific Apparatus Makers of the United States, is a monthly under the title: "Journal of the Optical Society of America and Review of Scientific Instruments."

Membership Qualifications and Dues

Any person who has "contributed materially to the advancement of optics" is eligible to regular membership.

Any individual or corporation "interested in optics" is eligible to associate membership.

Any person who has done "eminent service in the advancement of optics" is eligible to honorary membership.

All classes of members receive the publications of the society.

Only regular and honorary members may vote at elections and hold office.

All applications for membership are considered as applications for associate membership and initially acted upon as such. Election to regular membership (from among associate members) is made by the council at its annual meeting.

The council may elect honorary members by unanimous vote.

The dues are as follows:—

Honorary	No dues
Regular	
Annual	$ 7.50
Life	100.00
Associate Individual	
Annual	5.00
Life	100.00
Associate Corporation	
Annual	50.00

Any person or corporation who contributes one thousand dollars ($1000.00) to the expenses of the society is entitled to the rank of "Patron of the Society."

All persons desiring to join the society or cooperate with it in any way are invited to communicate with the secretary, the president, or any member.

History

AVANT-PROPOS

As the opening of the nineteenth century was characterized, in the history of optics, by the birth of a new concept of the subject matter and scope of that science, so the first two decades of the twentieth century have been characterized by that concept coming to full maturity, and by the crystallization of ideas as to the practical application of the larger science of optics and the specialized development of its technics.

Nineteenth century optics was characteristically a "pure" (academic) science; its outstanding "application" was to the likewise "pure" sciences of astronomy and astrophysics,—the ever memorable advances in the construction of telescopes and the application of spectroscopy. Aside from relieving the infirmities of vision, and the commonplace use of lenses, telescopes, opera-glasses, field-glasses, surveying instruments and sextants (not to mention the optical toys such as the kaleidoscope and parlor stereoscope, characteristic of the epoch) its specialized technical applications to utilitarian affairs were minor. However, the closing decade of the nineteenth century witnessed the epoch-making advances in the development of new optical glasses, the design and construction of instruments, and in the applications of photography. Convenient precision tools were made ready for a variety of applications. The definite systematic application of optical technics began.

The development of optics, and particularly its applications, received great impetus throughout the civilized world from the foundation of the national standardizing laboratories,—the Reichsanstalt, the National Physical Laboratory, and the National Bureau of Standards. The establishment of the optics division in the Bureau of Standards (1903–04) may perhaps be taken as the first definite recognition of the general technologic and industrial importance of optics in America. This period was marked by the appearance of the bureau's circulars on "Optical Instruments," "Optical Properties of Materials," and Nutting's "Applied Optics" (1912). The development of technologic optics has since gone on apace in the newly founded research laboratories,—Geophysical, Nela, Eastman, General Electric, Western Electric, to mention only a few. In the meantime, America's manufacturers of optical instruments and products built up their scientific staffs; several universities began to organize technologic instruction in optics

and the number of university professors and students devoted to research in optics has increased and continues to increase rapidly.

During the first ten or twenty years of the present century the time had evidently arrived for the more definite organization of optical science. Owing to numerous activities in optics, a potential membership not fully served by existing societies, was waiting to be organized. The idea was in the air throughout the world as well as in America. The Optical Society in London had already been organized in 1899 and had begun the publication of its Transactions in the same year. The organization of the Institut d'Optique in Paris was begun in 1916; and publication of the *Revue d'Optique* under its auspices was begun in 1922. Gleichen founded the *Archiv für Optik* in Leipzig in 1907.[4] L'Associazione di Ottica e Meccanica Precisione was founded in Italy 1919 and began publication of *Rivista d'Ottica*. Publication of the transactions of the optical institute in Leningrad began in 1920.

There has come into existence in America since 1900 a body of men definitely devoted to optics,—a body of men exceedingly heterogeneous in their diverse interests but strikingly homogeneous and united in their devotion to optics, be it "pure" or be it "applied," a body of "experts" none of whom is expert enough to define the illusory demarcation between "pure" and "applied." *Hence: The Optical Society of America*, which, for these men,—be they, as individuals, typically physicists, chemists, astronomers, biologists, psychologists, ophthalmologists, artists, engineers, technologists, or instrument makers—satisfies a need which is met by no other agency.

ACTIONS PRELIMINARY TO ORGANIZATION

The preceding paragraphs have pointed out, how the development of optical science and technology came to the stage which must needs *naturally*—almost spontaneously—bring into being an optical society in America. It is none the less to be noted that, as is always the case in such circumstances, definite action depended upon the intiative of some one man to whom is due the credit for leading the way. It is largely to the imagination and initiative of Dr. P. G. Nutting that the Optical Society of America owes its origin and organization.

Apparently, the first definite actions looking to the organization of an optical society in America were taken at the Bureau of Standards

[4] Unfortunately, it had a short life.

in 1910; but were not immediately successful. It is known that Dr. Stratton, the first director of the bureau and chief of its optics division, desired to have a national conference on optics at the bureau. In the summer of 1910 Dr. Nutting, then at the bureau, addressed letters to a number of leaders in optical science and industry proposing such a conference and suggesting the organization of a society. Although favorable replies were received, no organization resulted at that time.

A local society devoted to optics was established in Rochester in the winter of 1914–15,[5] and continues to flourish. It was from the activities of this group that the Optical Society of America originated in 1916.

In February 1916 the Rochester organization, by publication of a notice in *Science*,[6] formally proposed the organization of a national society. P. G. Nutting and F. E. Ross were named as temporary chairman and secretary of the organizing committee. In March, 1916, Messrs. Nutting and Ross, addressed a letter of information concerning the proposed society to about 45 prospective members outside of Rochester, inviting them to become charter members and also to submit lists of other prospective members. Eighteen of these men together with twelve from Rochester signified their desire to become charter members.

ORGANIZATION

As a result of these preliminary actions, the Optical Society of America was organized in the summer of 1916 with the following thirty charter members:

Adelbert Ames, Jr.	Worcester, Mass.
Edward Bausch	Rochester, N. Y.
E. J. Bissell	Rochester, N. Y.
William Churchill	Corning, N. Y.
Louis Derr	Boston, Mass.
Marshall D. Ewell	Chicago, Ill.
C. W. Frederick	Rochester, N. Y.
Henry P. Gage	Corning, N. Y.
George E. Hale	Pasadena, Cal.
Edward P. Hyde	Cleveland, Ohio
Herbert E. Ives	Philadelphia, Pa.
L. A. Jones	Rochester, N. Y.
Herman Kellner	Rochester, N. Y.
C. H. Kerr	Southbridge, Mass.
Walter B. Lancaster	Boston, Mass.
Adolph Lomb	Rochester, N. Y.

[5] The committee on organization consisted of C. W. Frederick, L. A. Jones, H. Kellner, Adolph Lomb, H. D. Minchin, P. G. Nutting, W. B. Rayton, F. E. Ross, and F. B. Saegmüller.

[6] Science, February 18, 1916, p. 238.

Norman Macbeth	New York, N. Y.
C. E. K. Mees	Rochester, N. Y.
Howard D. Minchin	Rochester, N. Y.
P. G. Nutting	Rochester, N. Y.
C. F. Prentice	New York, N. Y.
Irwin G. Priest	Washington, D. C.
W. B. Rayton	Rochester, N. Y.
F. K. Richtmyer	Ithaca, N. Y.
F. E. Ross	Rochester, N. Y.
F. B. Saegmüller	Rochester, N. Y.
J. P. C. Southall	New York, N. Y.
E. D. Tillyer	Southbridge, Mass.
E. J. Wall	Syracuse, N. Y.
Fred E. Wright	Washington, D. C.

The first officers were:

President.....P. G. Nutting
Vice President.....G. E. Hale
Treasurer.....Adolph Lomb
Secretary.....F. E. Ross

Members of the Council; Norman Macbeth, C. E. K. Mees, J. P. C. Southall, F. E. Wright.

A notice of the organization of the society with the list of charter members, officers, and extracts from the constitution was published in *Science*, August 4, 1916, pp. 163–164.

A prospectus of the newly organized society was mailed to other prospective members August 14, 1916, and resulted in increasing the membership to seventy-four by the end of 1916.

In December 1916 (under printed date "1917") a booklet was published giving the constitution, by-laws, and lists of members, officers, and committees.

The first annual meeting was held in Fayerweather Hall, Columbia University, New York, under the general auspices of the American Association for the Advancement of Science, December 28, 1916.

Final plans for the Journal of the Optical Society of America were completed by the council December 28, 1916, and publication under the editorship of Herman Kellner began with the number for January, 1917.

EARLY HISTORY

It is thus seen that the Optical Society, born on the eve of America's entry into the World War, passed its first years in the resulting confusion. In the history of the society, the turmoil of war appears to have

played a double role of impediment and stimulant. The second annual meeting (to have been held in Pittsburgh, December, 1917) was canceled on account of war activities. The publication of the JOURNAL was interfered with, became irregular, and was suspended during the calendar year, 1918. However, the third annual meeting (Baltimore, December, 1918) witnessed a rebirth of the Optical Society. Those who attended that meeting will ever remember with pleasure the lusty activities of that very vigorous infant. The program testifies that the war-time activities had contributed much to its resuscitation; but it also testifies to the pleasure and earnestness with which members were rebending their thought to the more genial activites of peace. However, there were still post-war troubles. The fourth annual meeting (to have been in St. Louis, December, 1919) was postponed on account of the railway strike; but, nevertheless, the postponed meeting (New York, February, 1920) was a very successful one. The JOURNAL, in new form, under the editorship of Foote, began publication with January, 1920. The fifth annual meeting (Chicago, December, 1920), a brilliantly successful joint meeting with the American Physical Society under the general auspices of the American Association for the Advancement of Science, may well mark the close of the "Early History" of the Optical Society. The membership was about 200 (220 of record in April, 1921). The reborn JOURNAL, definitely established and regularly published, had just completed its first year; the machinery of organization was in running order; from then on the activities of the society have proceeded in smooth and regular sequence. The fifth annual meeting was also the last to be held in December, under the auspices of the American Association for the Advancement of Science. The new order, with annual meetings in October, began with the Helmholtz Memorial Meeting in Rochester in October, 1921. The outline of subsequent history may be traced in the tables of growth, calendar of meetings, and list of officers which follow; and those who are interested in further details can find them in the minutes, notices, reports, and proceedings published in the JOURNAL.[7]

[7] The manuscript records of organization and early history, compiled by Nutting early in 1921, and later bound into a book are in the custody of the secretary of the society. The title of this book is: "Optical Society of America—Early Records—1910–1920." Many more details are given in these manuscript records.

GROWTH

Accessions

Charter members, August, 1916	30	Science, pp. 163–164, Aug. 4, 1916
Elected in 1916	44	Nutting's MS minutes, and Census of Membership by Secretary (Priest), J.O.S.A. and R.S.I., *7*, p. 144; Jan., 1923.
" " 1917 (calendar years)	13	
" " 1918	13	
" " 1919	31	
" " 1920	72	
" " 1921	98	
" " 1922	56	Count by Secretary Sept. 1, 1928.
" " 1923	42	
" " 1924	18	
" " 1925	43	
" " 1926	75	
" " 1927	13	
" " 1928 (to Sept. 1)	24	
Total	572	

Membership at Various Dates

Year	*Month*	*Number of Members*	*Authority*
1916	August	30	Science, pp. 163–164, Aug. 4, 1916.
1916	December	74	Booklet, "Optical Society of America .... 1917." (Printed in December, 1916.)
1919	January (about)	117	Membership Directory published in J. O. S. A., pp. 48–50; Jan.-March, 1919.
1921	March	220 (about)	Science, *53*, pp. 318–320; April 1, 1921.
1922	October 24	308	Synopsis of Membership, J. O. S. A. and R. S. I., *8*, p. 39; Jan., 1924.
1923	October 27	361	
1924	April 26	370	J. O. S. A. and R. S. I., *9*, pp. 91–92; July, 1924, in conjunction with above reference.
1926	March	400	Membership directory, J. O. S. A. and R. S. I., *13*, pp. 59–72; July, 1926.
1928	September 1	456	Directory in this Yearbook.

It thus appears that the total accessions to September 1, 1928 (including the charter members) amount to 572, while the present membership is 456, indicating total losses (death, resignation, and non-payment of dues) amounting to 116 spread over a period of twelve years.

No. in "Annual" Series	*Date*	*Place*	*President*	*Secretary*	*Publication of Minutes*
1	Dec. 28, 1916[8]	New York	Nutting	Ross	J.O.S.A., *1*, p. 45; Jan., 1917.
2	1917[9]	(Meeting called for Pittsburgh was cancelled on account of war.)			
3	Dec. 27, 1918[9]	Baltimore	Wright	Nutting	Science, *49*, p. 52; Jan. 10, 1919. (See also J.O.S.A., Jan.-March, 1919.)
4	Feb. 26–27, 1920[8]	New York	Wright (Actg.)	Nutting (Actg.)	J.O.S.A., *4*, pp. 80–82; March, 1920.
5	Dec. 27–29, 1920[9, 10]	Chicago	Richtmyer	Foote	J.O.S.A., *5*, pp. 210–212; March, 1921. Science, *53*, pp. 318–320; April 1, 1921.
6	Oct. 24–26, 1921[11]	Rochester	Southall	Priest	J.O.S.A. & R.S.I., *6*, pp. 407–415; June, 1922. Science, pp. 501–502; Nov. 18, 1921.
7	Oct. 25–28, 1922	Washington	Troland	Priest	J.O.S.A. & R.S.I., *7*, pp. 59–102; Jan., 1923. Science, pp. 636–640; Dec., 1, 1922.
8	Oct. 25–27, 1923	Cleveland	Troland	Priest	J.O.S.A. & R.S.I., *8*, pp. 21–45; Jan., 1924. Science, pp. 451–452; Nov. 30, 1923.
9	Oct. 23–25, 1924	Boston	Ives	Richtmyer (Actg.)	J.O.S.A. & R.S.I., *10*, pp. 283–297; March, 1925.
	Feb. 27–28, 1925[10]	New York	Ives	Richtmyer / Southall (Actg.)	J.O.S.A. & R.S.I., *11*, pp. 125–134; Aug, 1925.
10	Oct. 29–31, 1925	Ithaca	Ives	Richtmyer (Actg.)	J.O.S.A. & R.S.I., *12*, pp. 473–494; May, 1926.
	Feb. 26–27, 1926[10]	Montreal	Forsythe	Richtmyer (Actg.)	J.O.S.A. & R.S.I., *13*, pp. 303–308; Sept., 1926.
11	Oct. 21–23, 1926	Philadelphia	Forsythe	Bidwell	J.O.S.A. & R.S.I., *14*, pp. 133–148; Feb., 1927.
	Feb. 25–26, 1927[10]	New York	Forsythe	Bidwell	J.O.S.A. & R.S.I., *14*, pp. 470–476; June, 1927.
12	Oct. 20–22, 1927	Schenectady	Forsythe	Bidwell	J.O.S.A. & R.S.I., *16*, pp. 113–123; Feb., 1928.
	Feb. 24–25, 1928[10]	New York	Priest	Bidwell	J.O.S.A. & R.S.I., *16*, pp. 329–335; May, 1928.

[8] This meeting was originally scheduled to be held with A.A.A.S. in St. Louis, Dec. 1919, but was postponed on account of railway strike.

[9] With A.A.A.S.

[10] Joint meeting with American Physical Society.

[11] Helmholtz Memorial Meeting.

PAST OFFICERS

Under the original by-laws, the term for all officers was one calendar year beginning January 1st following their election in October. Under an amendment adopted in October 1921, which became effective for terms beginning Jan. 1, 1922, the terms of office are as follows:—For president, vice-president and elected members of the council, two years; for secretary and treasurer, five years.

Under the original constitution the Executive Council consisted of the president, vice-president, secretary, treasurer, the retiring president, and four members at large. Under an amendment adopted in Oct. 1917, the editor of the JOURNAL is also a member of the Executive Council. Under another amendment adopted in September, 1922, the assistant editor-in-chief and business manager of the JOURNAL is also a member of the Executive Council.

Year	*President*	*Vice-President*	*Secretary*	*Treasurer*	*Elected Members of Executive Council*
1916 (*Part Year, July-Dec.*)	P. G Nutting	G. E. Hale	F. E. Ross	Adolph Lomb	Norman Macbeth C. E. K. Mees J. P. C. Southall F. E. Wright
1917	P. G. Nutting	G. E. Hale	F. E. Ross	Adolph Lomb	Norman Macbeth C. E. K. Mees J. P. C. Southall F. E. Wright
1918	F. E. Wright	F. K. Richtmyer	P. G. Nutting	Adolph Lomb	H. E. Ives W. B. Lancaster L. T. Troland J. P. C. Southall
1919	F. E. Wright	F. K. Richtmyer	P. G. Nutting	Adolph Lomb	H. E. Ives W. B. Lancaster L. T. Troland J. P. C. Southall
	(No election was held. By unanimous consent the by-laws relating thereto were suspended and it was voted to continue the 1918 officers through the year 1919.)				
1920	F. K. Richtmyer	C. A. Skinner	P. D. Foote	Adolph Lomb	L. A. Jones C. H. Kerr P. G. Nutting I. G. Priest

1921	J. P. C. Southall	C. E. Mendenhall	I. G. Priest *(Elected for one-year term, beginning Jan. 1, 1921.)*	Adolph Lomb	W. E. Forsythe L. A. Jones C. E. K. Mees P. G. Nutting
1922	L. T. Troland	H. E. Ives	I. G. Priest *(Elected for five-year term, beginning Jan. 1, 1922, but resigned, April, 26, 1924.)*	Adolph Lomb	A. Ames, Jr. W. E. Forsythe H. G. Gale Ernest Merritt
1923	L. T. Troland	H. E. Ives	I. G. Priest	Adolph Lomb	A. Ames, Jr. W. E. Forsythe H. G. Gale Ernest Merritt
1924	H. E. Ives	W. E. Forsythe	I. G. Priest *(Resigned, April, 26)* F. K. Richtmyer *Acting*	Adolph Lomb	K. T. Compton C. W. Keuffel P. G. Nutting F. E. Wright
1925	H. E. Ives	W. E. Forsythe	F. K. Richtmyer *Acting*	Adolph Lomb	K. T. Compton C. W. Keuffel P. G. Nutting F. E. Wright
1926	W. E Forsythe	I. G. Priest	C. C. Bidwell (F. K. Richtmyer, *Acting part time.*)	Adolph Lomb	K. T. Compton C. W. Keuffel C. E. K. Mees P. G. Nutting
1927	W. E. Forsythe	I. G. Priest	C. C. Bidwell	Adolph Lomb	K. T. Compton C. W. Keuffel C. E. K. Mees P. G. Nutting
1928	I. G. Priest	L. A. Jones	C. C. Bidwell	Adolph Lomb	L. R. Ingersoll P. E. Klopsteg W. F. Meggers A. H. Pfund
	(Term expires, Dec. 31, 1929.)	*(Term expires, Dec. 31, 1929.)*	*(Term expires, Dec. 31, 1930.)*	*(Term expires, Dec. 31, 1931.)*	*(Term expires, Dec. 31, 1929.)*

(N. B. Error in previous minutes concerning terms of office. J.O.S.A. & R.S.I., *12*, p. 473, last line of second paragraph, 1925 should be 1926.)

The Journal

THE JOURNAL OF THE OPTICAL SOCIETY OF AMERICA AND REVIEW OF SCIENTIFIC INSTRUMENTS

The official organ of the Optical Society of America is "The Journal of the Optical Society of America and Review of Scientific Instruments." It is published monthly by the Optical Society in cooperation with the Association of Scientific Apparatus Makers of the United States. The section on optics is devoted to original papers on experimental, theoretical, and applied optics. The section on scientific instruments is devoted to original papers on instruments of all kinds, (electrical, mechanical, thermal, etc., as well as optical) for research, instruction, and industrial processes. The JOURNAL is sent to all honorary, regular, and associate members. The annual subscription price to non-members is $5.00 per year, and single copies are sold at $0.60.

The editor-in-chief of the JOURNAL is Dr. Paul D. Foote, Mellon Institute of Industrial Research, University of Pittsburgh; the assistant editor-in-chief and business manager is Professor F. K. Richtmyer, Cornell University, Ithaca, N. Y.; and the consulting business manager (unofficially representing the Association of Scientific Apparatus Makers) is Mr. M. E. Leeds, Philadelphia, Pa.

The first number of the JOURNAL of the Optical Society of America was issued under date of January, 1917. The publication was designated as "bi-monthly," but during the war the dates of issue were necessarily irregular and the publication discontinuous. Librarians and others will be interested in the following statement of issues. During the calendar years 1917–19, inclusive, there were six separate issues designated as follows:

Vol. I, No. 1, January, 1917.
Vol. I, Nos. 2–3, March-May, 1917.
Vol. I No. 4, July, 1917.
Vol. I, Nos. 5–6, September-November, 1917.
Vols. II–III, Nos. 1–2, January-March, 1919.
Vols. II–III, Nos. 3–6, May-November, 1919.

There were no issues in the calendar year 1918.

Beginning with January, 1920, the size and style of the JOURNAL were changed. It was issued bi-monthly until May, 1922, and since then monthly. (There were ten issues in the calendar year 1922, Vol. VI.) By cooperation with the Association of Scientific Apparatus Makers of the United States, the scope of the JOURNAL has been enlarged, as indicated by the new title, "Journal of the Optical Society

of America and Review of Scientific Instruments," which was adopted with the issue for January, 1922.

The editing of the JOURNAL is now conducted under the following provisions of the society's revised by-laws (art. V as amended October, 1923. See J. O. S. A. and R. S. I., *8*, p. 38; January, 1924.):—"The editor-in-chief and the assistant editor-in-chief and business manager of the JOURNAL and six or more associate editors shall be elected by the executive council of the society. The terms of office of the editor-in-chief and the assistant editor-in-chief and business manager shall be six years, and the expiration of their respective terms shall not coincide. The terms of office of the associate editors shall be six years, one third of them to be elected biennially."

The corresponding provision in the original by-laws was merely:—"The editor-in-chief of the JOURNAL and six or more associate editors shall be elected by the Executive Council of the Society."

Editor-in-chief.

H. Kellner 1917–1919.
P. D. Foote 1920–
(First term expired December 31, 1925. See J.O.S.A. and R.S.I., *8*, p. 38. Second term expires December 31, 1931. See J.O.S.A. and R.S.I., *12*, p. 473; May, 1926.)

Assistant Editor-in-chief and Business Manager.

F. K. Richtmyer 1922–
(First term expired December 31, 1927. See J.O.S.A. and R.S.I., *8*, p. 38. Second term expires December 31, 1933. See J.O.S.A. and R.S.I., *16*, p. 114; Feb., 1928.)

Current Board of Associate Editors.

Term Ending December 31, 1929.	Term Ending December 31, 1931.	Term Ending December 31, 1933.
E. C. Crittenden	Frank Allen	Saul Dushman
Herbert E. Ives	K. T. Compton	K. S. Gibson
R. A. Millikan	K. K. Darrow	L. O. Grondahl
L. P. Sieg	G. S. Fulcher	P. E. Klopsteg
J. P. C. Southall	I. C. Gardner	W. B. Rayton
H. S. Uhler	L. A. Jones	H. B. Williams

The Frederic Ives Medal

This medal, endowed by Dr. Herbert E. Ives in 1928. is named in honor of his father, Frederic Ives, distinguished for his pioneer contributions to color photography, photoengraving, three-color process printing, and other branches of applied optics. It is to be awarded by the Optical Society of America for distinguished work in optics. It is expected that the award will generally be made biennially on the occasion of the second annual meeting in each administration.

Constitution

(The Constitution and By-Laws were first published in a booklet printed in December, 1916, under date of 1917. They were again published in J.O.S.A., p. 46; Jan.-March, 1919, and in J.O.S.A. and R.S.I., *8*, pp. 49–51; Jan., 1924.)

Article I.—Name

The name of this society shall be THE OPTICAL SOCIETY OF AMERICA.

Article II.—Aim and Purpose

It is the aim and purpose of this society to increase and diffuse the knowledge of optics, to promote the mutual interests of investigators of optical problems, of designers, manufacturers, and users of optical instruments and apparatus of all kinds and to encourage cooperation among them.

Article III.—Officers

The officers of this society shall be a president, a vice-president, a treasurer, a secretary, and an executive council consisting of the above named officers of the society, the retiring president of the society and four members at large.

Article IV.—Membership

Membership in the society shall be either honorary, regular or associate. Associate members may be either individuals or corporations.

Article V.—Amendments

This constitution shall be amended when the proposed amendment is favored by four-fifths of all the members voting upon it. A copy of every proposed amendment shall be mailed to each regular member of the society at least thirty days before a vote is taken. Voting shall be by ballot.

Amendments to the Constitution

1. The editor of the Journal shall be, ex officio, a member of the executive council. (Adopted, Oct., 1917. See MS minutes by Nutting.)

2. The assistant editor-in-chief and business manager of the Journal shall be, ex officio, a member of the executive council. (Adopted Sept. 5, 1922. See J.O.S.A. and R.S.I., *6* pp. 987–988.)

Revised By-Laws

(The following is a transcript of the BY-LAWS *as modified by all amendments prior to Sept. 1, 1928*. The original BY-LAWS were published in J.O.S.A., Jan.-March, 1919, pp. 46–47. For records of amendments, see: J.O.S.A., VII, pp. 145–146, Jan., 1923; J.O.S.A., VII, p. 211, Feb. 1923; J.O.S.A., VIII, p. 38, 1924; J.O.S.A. and R.S.I., *10*, p. 283, March, 1925; and J.O.S.A. and R.S.I., *16*, p. 114, Feb., 1928.)

I.—Membership

Section 1. Eligibility. Any person who has, in the opinion of the council, contributed materially to the advancement of optics shall be eligible to regular membership in the society. Any person or corporation interested in optics is eligible to associate membership. Any person who has done eminent service in the advancement of optics is eligible to honorary membership.

Section 2. Application for Membership. Application for membership in this society will be received when stating the candidate's name and qualifications for membership in the society, and when signed by two members of the society.

Section 3. Election to Membership. All applications for membership shall first be considered as applications for associate membership and acted upon as such. Applicants shall be deemed elected to associate membership when their duly prepared applications have received the written approval of three members of the executive council.

Elections to regular membership shall be made only by the executive council in annual meeting.

Associate members may be elected to regular membership when favored with the vote of two-thirds of the members of the executive council present and voting.

The executive council may elect honorary members by unanimous vote.

Section 4. Duties and Privileges. All regular members shall have the right to vote at elections, hold office, attend meetings and receive the official publications of the society. Associate members shall have similar privileges except that they may not vote at elections nor hold office in the society. Honorary members have all the privileges of regular members but need not pay dues.

Section 5. Termination of Membership. Membership in the society may be terminated or the names of the members may be placed upon the non-resident list by vote of the council. Failure to pay dues for one year shall be deemed sufficient cause for termination of membership.

II.—Collections and Disbursements

Section. 1. Dues. Each regular individual member of the society shall contribute seven dollars and fifty cents annually, and each individual associate member shall contribute five dollars annually, and each corporation member shall contribute fifty dollars annually toward the expenses of the society. Any individual member, regular or associate, by payment of one hundred dollars, may become a life member (regular or associate) of the society. The payment of one thousand dollars or more toward the expenses of the society by any corporation or individual entitles them to the rank of patron of the society.

Section 2. Disbursements. Disbursements and assessments shall be made only when recommended by the treasurer and favored by two-thirds vote of the council. No officer or member of the society except the editor-in-chief and the assistant editor-in-chief and business manager of the Journal shall receive any remuneration for his services.

III.—Officers

Section 1. Regular Officers. The duties of the president, vice-president, treasurer and secretary of the society shall be the usual ones performed by such officers.

Section 2. Executive Council. The executive council shall direct all affairs and activities of the society not otherwise provided for by the Constitution as well as perform those duties specifically assigned to it.

Section 3. Committees. The president shall appoint, with the approval of the council, such committees as may further the objects of the society, including a committee on Publications, and one or more committees on Progress. The treasurer, the secretary and the chairmen of the various committees shall make formal reports to the society at least once each year.

IV.—Election of Officers

Section 1. Eligibility. Officers shall be elected from among the regular and honorary members of the society. The president and vice-president shall be elected for a two-year term, the secretary and treasurer for a five-year term of office and shall not be eligible to re-election. Members at large of the council shall be elected for a two-year term. After a service of two consecutive terms members-at-large of the Council shall be eligible for re-election only after an interval of two years.

Section 2. Time of Election. All officers shall be elected in October to take office on the first of January following.

Section 3. Mode of Election. Election shall be by ballot. Nominations shall be made by a nominating committee appointed by the president and approved by the council. This committee shall consist of five regular members of the society, at least one of whom shall be a past president of the Society.

V.—Publications

This society shall publish a journal devoted to the advancement of optics. The editor-in-chief and the assistant editor-in-chief and business manager of the Journal and six or more associate editors shall be elected by the executive council of the society. The terms of office of the editor-in-chief and the assistant editor-in-chief and business manager shall be six years, and the expiration of their respective terms shall not coincide. The terms of office of the associate editors shall be six years, one third of them to be elected biennially. Every regular, honorary and associate member of the society shall be entitled to receive the Journal.

VI.—Local Sections

Local sections of the society may be formed in any locality, with the advice and consent of the council, for the purpose of holding meetings and promoting cooperation. The affairs of such local sections shall be entirely in their own hands.

VII.—Meetings

General meetings of the society shall be held as decided upon by the executive council.

VIII.—Revision of the By-Laws

By-Laws may be enacted, amended or suspended by concurrence of two-thirds of the whole executive council.

Directory

PATRONS

(The payment of One Thousand Dollars toward the expenses of the society entitles the donor to the rank of Patron.—By-Laws, art. 2, sec. 1. See also J.O.S.A. and R.S.I., *8*, p. 38; Jan., 1924.)

Adolph Lomb
Eastman Kodak Company

OFFICERS AND EXECUTIVE COUNCIL

1928–1929

(The executive council consists of the president, the vice-president, the secretary, the treasurer, the past president, the editor-in-chief of the Journal, the assistant editor-in-chief and business manager of the Journal, as *ex officio* members; and four members at large elected by the society. Terms expire December 31, 1929 except as otherwise noted. For addresses, see alphabetical directory of membership.)

President—Irwin G. Priest.

Vice-President—Loyd A. Jones.

Secretary—Charles C. Bidwell. (*Term expires December 31, 1930.*)

Treasurer—Adolph Lomb. (*Term expires December 31, 1931.*)

Past President—W. E. Forsythe. (*Term as president expired December 31, 1927. Term as member of the council expires December 31, 1929.*)

Editor-in-chief—Paul D. Foote. (*Term expires December 31, 1931.*)

Assistant Editor-in-chief and Business Manager—F. K. Richtmyer. (*Term expires December 31, 1933.*)

ELECTED MEMBERS OF COUNCIL—

L. R. Ingersoll
P. E. Klopsteg
A. H. Pfund
W. F. Meggers

COMMITTEES
1928–1929

Committee on Membership:

C. C. Bidwell, Chairman	F. K. Richtmyer	E. P. T. Tyndall
A. H. Pfund	Edison Pettit	H. M. Randall
A. E. O. Munsell	P. D. Foote	Louise L. Sloan
R. T. Birge	L. A. Jones	Harry G. Ott
A. C. Hardy	W. B. Rayton	H. P. Gage
M. Luckiesh	Saul Dushman	Henry Crew
P. E. Klopsteg	F. G. Brickwedde	L. R. Ingersoll
H. G. Gale	Charles Sheard	H. S. Uhler
J. P. C. Southall	Frank Allen	L. O. Grondahl
C. W. Keuffel	A. Ames, Jr.	Louise S. McDowell

Committee on Finance:

Adolph Lomb, Chairman	C. W. Keuffel	J. P. C. Southall
P. D. Foote	F. K. Richtmyer	

Committee on Publications:

F. K. Richtmyer, Chairman	P. D. Foote	J. P. C. Southall

Committee on Contract with the Association of Scientific Apparatus Makers:

F. K. Richtmyer, Chairman	Adolph Lomb	J. P. C. Southall
P. D. Foote		

Committee on Publication and Care of Society's Official Records and Notices:

C. C. Bidwell, Chairman	H. E. Ives	F. K. Richtmyer
P. D. Foote	Adolph Lomb	J. P. C. Southall

Committee on Publication of Membership Directory (Yearbook) and Measures for Increasing Membership:

C. C. Bidwell, Chairman	H. D. Hubbard	F. K. Richtmyer
P. D. Foote	Adolph Lomb	

Committee on Transfer of Associate Members to Regular Membership:

C. C. Bidwell, Chairman		
H. E. Ives	W. E. Forsythe	H. G. Gale
A. H. Pfund	J. P. C. Southall	K. T. Compton
L. T. Troland	F. K. Richtmyer	W. T. Bovie

Committee on Photographic Standard of Intensity:

L. A. Jones, Chairman	K. S. Gibson	C. E. K. Mees
E. C. Crittenden	A. C. Hardy	A. G. Worthing
Raymond Davis	H. E. Ives	

Committee on Foundation of Frederic Ives Medal:

H. E. Ives, Chairman — Adolph Lomb
Chas. Bittinger — J. P. C. Southall

Committee of the Council on Relation of Local Sections to the Optical Society of America:

L. A. Jones, Chairman — W. F. Meggers — P. E. Klopsteg

Committee of the Council on Place for Fourteenth Annual Meeting (Oct., 1929):

C. C. Bidwell, Chairman — W. E. Forsythe — L. A. Jones

REPRESENTATIVES AND DELEGATES TO OTHER ORGANIZATIONS

Representatives on the Council of the American Association for the Advancement of Science: (Terms indeterminate. Appointees to serve until their successors are appointed.)

H. E. Ives. (New appointee, February 24, 1928.)
F. K. Richtmyer. (Appointed October 24, 1921. Appointment renewed, October, 1924, and again February 24, 1928.)

Representative on the Division of Physical Sciences of the National Research Council: (Three-year term.)

F. E. Wright. (Term expires June 30, 1930.)

Representative on the U. S. National Committee of the International Commission on Illumination:

Frank Benford. (Appointed February 24, 1928. Term expires December 31, 1929.)

Delegation to the Seventh International Congress on Photography, London, England, July 9–14, 1928.

C. E. K. Mees, Chairman
H. E. Ives, Vice Chairman
Raymond Davis
W. F. Meggers
(Only Mees and Meggers actually attended the meeting.)

HONORARY MEMBERS

(Any person who has done eminent service in the advancement of optics is eligible to honorary membership. The executive council may elect honorary members by unanimous vote.—By-Laws, art. 1. By action of the council, the President of the Optical Society, London, is *ex officio*, an honorary member of the Optical Society of America during his term of office as President of the London Society.)

Dr. R. S. Clay, President, Optical Society, London
Dr. George E. Hale
Prof. Charles S. Hastings
Prof. A. A. Michelson
Prof. Edward L. Nichols
Dr. S. W. Stratton

CORPORATION MEMBERS

Bausch and Lomb Optical Company
Electrical Testing Laboratories
Gaertner Scientific Corporation
Keuffel and Esser Company
Leeds and Northrup Company
Munsell Color Company

ALPHABETICAL DIRECTORY OF MEMBERS

(Sept. 1, 1928.)

R	indicates	Regular Member, dues paid annually.
RL	"	Regular Member, dues paid for life.
A	"	Associate Individual Member.
AC	"	Associate Corporation Member.
H	"	Honorary Member.

The number prefixed to each name is the serial number in order of election to membership. It gives the reference to the original record of election in the Society's archives.

(R270) ABBOT, CHARLES G.,
Smithsonian Institution,
Washington, D. C.

(R163) ADAMS, ELLIOT Q.,
Nela Research Laboratory,
Nela Park, Cleveland, Ohio.

(R423) ALDRICH, L. B.,
Smithsonian Institution,
Washington, D. C.

(R380) ALLEN, FRANK,
University of Manitoba,
Winnipeg, Canada.

(R243) ALTMAN, FRED E.,
Hawk-Eye Works,
Eastman Kodak Company,
Rochester, N. Y.

(R1) AMES, ADELBERT, JR.,
Dartmouth College,
Hanover, N. H.

(R64) ANDERSON, J. A.,
Mt. Wilson Observatory,
Pasadena, Calif.

(R131) ANDERSON, PAUL,
1909 West Adams Street,
Los Angeles, Calif.

(A573) ANDERSON, W. T., JR.,
Hanovia Chem. & Mfg. Co.,
Newark, N. J.

(A575) ARNOLD, J. P.,
541 S. Yewdell Street,
Philadelphia, Pa.

(R78) BAHN, CARL E.,
Bausch & Lomb Opt. Co.,
Rochester, N. Y.

(A257) BANDOLY, ERICH,
2232 Addison Street,
Chicago, Ill.

(A560) BANERJI, S. N.,
T. N. J. College,
Bhagalpur, India.

(A546) BARNES, LELAND S.,
715-4th Avenue,
Bethlehem, Pa.

(A445) BARTLETT, H. S.,
400 Boylston Street,
Boston, Mass.

(R239) BATES, FREDERICK J.,
Bureau of Standards,
Washington, D. C.

(R2) BAUSCH, EDWARD,
Bausch & Lomb Optical Co.,
Rochester, N. Y.

(AC576) BAUSCH & LOMB OPTICAL CO.,
Rochester, N. Y.

(R390) BAZZONI, CHARLES B.,
Randal Morgan Laboratory,
University of Pennsylvania,
Philadelphia, Pa.

(A571) BEAMS, JESSE W.,
Rouss Physical Laboratory,
University of Virginia,
Charlottesville, Va.

(R483) BEDELL, FREDERICK,
435 Wyckoff Avenue,
Ithaca, N. Y.

(A426) BEHR, LEO,
c/o Leeds & Northrup Co.,
4901 Stenton Avenue,
Philadelphia, Pa.

(R325) BENEDICT, WILLIAM L.,
Mayo Clinic,
Rochester, Minn.

(R152) BENFORD, FRANK A.,
Research Lab., General Elec. Co.,
Schenectady, N. Y.

(R181) BENNETT, A. H.,
Bureau of Standards,
Washington, D. C.

(R294) BERENS, CONRAD, JR.,
30 East 40th Street,
New York, N. Y.

(R256) BIDWELL, CHARLES C.,
Department of Physics,
Lehigh University,
Bethlehem, Pa.

(R75) BIELICKE, WM.,
c/o Astro-Gesellschaft,
Berlin-Wilmersdorf
Saalfelderstr., 10/12, Germany.

(R397) BIRGE, RAYMOND T.,
Le Conte Hall,
University of California,
Berkeley, Calif.

(A487) BISHOP, F. L.,
University of Pittsburgh,
Pittsburgh, Pa.

(R186) BISHOP, FRED M.,
Eastman Kodak Company,
Rochester, N. Y.

(R240) BITTINGER, CHARLES,
75 St. Paul Street,
Brookline, Mass.

(A436) BLAKE EDWIN M.,
Drawer A, Pratt Station,
Brooklyn, N. Y.

(R314) BLAKE, F. C.,
2107 Iuka Avenue,
Columbus, Ohio

(R34) BLANCHARD, JULIAN,
463 West Street,
New York, N. Y.

(A481) BOARDMAN, LELAND J.,
Houghton, N. Y.

(A548) BOILER, W. F.,
Iowa City, Iowa.

(R237) BOVIE, WILLIAM T.,
Laboratory of Biophysics,
303 E. Chicago Avenue,
Chicago, Ill.

(A450) BOWLES, EDWARD L.,
Mass. Institute of Tech.,
Cambridge, Mass.

(R339) BRADY, E. J.,
3101 Passyunk Avenue,
Philadelphia, Pa.

(A466) BRANSON, DAVID E.,
Room 1627, 195 Broadway,
New York, N. Y.

(A419) BRENNER, M. E.,
Calif. Institute of Tech.,
Pasadena, Calif.

(A446) BRICKWEDDE, FERDINAND G.,
Low Temperature Laboratory,
Bureau of Standards,
Washington, D. C.

(R473) BRONK, DETLEV WULF,
Swarthmore, Pa.

(R358) BROWN, THOMAS B.,
George Washington University,
2023 G Street, N. W.,
Washington, D. C.

(A463) BUCHTA, J. W.,
Department of Physics,
University of Minnesota,
Minneapolis, Minn.

(R395) BUGBEE, L. WILLIS, JR.,
4170 Guilford Avenue,
Indianapolis, Ind.

(R343) BURGESS, GEORGE K.,
Bureau of Standards,
Washington, D. C.

(R134) BURKA, SAMUEL M.,
Equipment Section, McCook Field,
Dayton, Ohio.

(R238) BURNS, KELVIN,
Allegheny Observatory,
N. S. Pittsburgh, Pa.

(A486) BURROUGHS, ROBERT E.,
Physical Research Laboratory,
Eastman Kodak Company,
Rochester, N. Y.

(R360) BUTTOLPH, L. J.,
1 Columbia Avenue,
Grantwood, N. J.

(R392) CADY, FRANCIS E.,
Nela Park,
Cleveland, Ohio.

(R393) CADY, WALTER GUYTON,
49 High Street,
Middletown, Conn.

(R32) CAPSTAFF, JOHN G.,
Eastman Kodak Company,
Rochester, N. Y.

(A577) CARROLL, BURT H.,
Bureau of Standards,
Washington, D. C.

(R215) CASE, THEODORE W.,
Case Research Laboratory,
Auburn, N. Y.

(R297) CATTELL, J. McK.,
Garrison-on-Hudson, N. Y.

(R249) CHAFFEE, E. LEON,
Cruft Lab., Harvard College,
Cambridge, Mass.

(A474) CHAMBERS, GORDON A.,
300 Elmdorf Avenue,
Rochester, N. Y.

(R315) CHESHIRE, R. W.,
Admiralty Research Lab.,
Teddington, Middlesex,
England.

(A467) CHILDS, HERBERT R.,
Rockefeller Hall, Cornell University,
Ithaca, N. Y.

(R488) CLARK, HARRY,
Leland Stanford Jr. University,
Palo Alto, Calif.

(R121) CLARK, HERBERT A.,
Taylor Instrument Companies,
Rochester, N. Y.

(A337) CLARK, JANET HOWELL,
232 W. Lanvale Street,
Baltimore, Md.

(A451) CLARK, LAURISTON E.,
39 Fairview Terrace,
Stamford, Conn.

(H) CLAY, R. S.,
Pres., Optical Society, London,
Northern Polytechnic Inst.,
Holloway Road,
London, N7, England.

(R235) COBB, PERCY W.,
Lighting Research Laboratory,
Nela Park, Cleveland, Ohio.

(R79) COBLENTZ, W. W.,
Bureau of Standards,
Washington, D. C.

(R234) COHEN, MARTIN,
1 West 85th Street,
New York, N. Y.

(R148) COLBY, WALTER F.,
322 N. State Street,
Ann Arbor, Mich.

(R210) COLE, A. D.,
Ohio State University,
Columbus, Ohio.

(A525) COLWELL, ROBERT CAMERON,
332 Demain Avenue,
Morgantown, W. Va.

(R264) COMPTON, ARTHUR H.,
Ryerson Physical Laboratory,
University of Chicago,
Chicago, Ill.

(R151) COMPTON, K. T.,
Palmer Physical Laboratory,
Princeton, N. J.

(R59) COMSTOCK, DANIEL F.,
1070 Beacon Street,
Brookline, Mass.

(R305) CONKLIN, O. E.,
Parlin, N. J.

(R489) COOKSEY, C. D.,
Department of Physics,
Yale University,
New Haven, Conn.

(A490) COOPER, F. L.,
Department of Physics,
Yale University,
New Haven, Conn.

(A323) COTTRELL, CASPER L.,
Kenyon College,
Gambier, Ohio.

(R447) COWAN, ALFRED,
2007 Pine Street,
Philadelphia, Pa.

(R154) CRAMER, EMILE R.,
c/o G. Cramer Dry Plate Co.,
1821 Shenandoah Avenue,
St. Louis, Mo.

(R62) CREW, HENRY,
Science Hall,
Northwestern University,
Evanston, Ill.

(R91) CRITTENDEN, E. C.,
Bureau of Standards,
Washington, D. C.

(A444) CUNNINGHAM, FREDERICK W.,
Lanark Road,
Stamford, Conn.

(R108) CURTIS, HEBER D.,
Allegheny Observatory,
N. S. Pittsburgh, Pa.

(A491) DAHM, T. M.,
Department of Physics,
University of Idaho,
Moscow, Idaho.

(R400) DARROW, KARL K.,
463 West Street,
New York, N. Y.

(R262) DAVEY, WHEELER, P.,
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Pennsylvania State College,
State College, Pa.

(A485) DAVIDSON, WARD F.,
55 Johnson Street,
Brooklyn, N. Y.

(R411) DAVIS, BERGEN,
Columbia University,
New York, N. Y.

(R156) DAVIS, RAYMOND,
Bureau of Standards,
Washington, D. C.

(R141) DAVISSON, C.,
Bell Telephone Labs., Inc.,
463 West Street,
New York, N. Y.

(R272) DAWES, H. F.,
McMaster University,
Toronto, Canada.

(R269) DELURY, RALPH E.,
Dominion Observatory,
Ottawa, Canada.

(A457) DOANE, HOWARD C.,
59 Temple Place,
Boston, Mass.

(R492) DODD, L. E.,
724 N. Normandie Avenue,
Los Angeles, Calif.

(R493) DORSEY, N. E.,
2101 B Street, N. W.,
Washington, D. C.

(R471) DRESBACH, MELVIN,
Albany Medical College,
Albany, N. Y.

(R369) DRISKO, WILLIAM J.,
Mass. Institute of Tech.,
Cambridge 39, Mass.

(R208) DUANE, WILLIAM,
695 Huntington Avenue,
Boston, Mass.

(RL410) DUNN, GANO,
20 Washington Square,
New York, N. Y.

(A568) DUNN, F. LOWELL,
University of Nebraska,
College of Medicine,
Omaha, Neb.

(R252) DUSHMAN, SAUL,
Research Laboratory,
General Electric Company,
Schenectady, N. Y

(A391) EASTHAM, MELVILLE,
11 Windsor Street,
Cambridge, Mass.

(RL128) EASTMAN, GEORGE,
Eastman Kodak Company,
Rochester, N. Y.

(A139) EICHLIN, CHARLES G.,
1204 Jefferson Street,
Washington, D. C.

(AC458) ELECTRICAL TESTING LABS.,
80th Street & East End Avenue,
New York, N. Y.

(R50) ELLIS, FREDERICK W.,
1175 Centre Street,
Newton Centre, Mass.

(A494) ELLIS, J. H.,
Glendora, Calif.

(A563) EVANS, RALPH MERRILL,
24 Arlington Street,
Haverhill, Mass.

(R285) EXTON, WILLIAM G.,
Prudential Ins. Co. of America,
Newark, N. J.

(R88) FABRY, CH.,
1 Rue Victor Cousin,
Paris (5e), France.

(R495) FAILLA, G.,
3251 Johnson Avenue,
Riverdale, N. Y.

(R299) FAIRBANKS, FLOYD C.,
University of Rochester,
Rochester, N. Y.

(R111) FAIRCHILD, CHARLES O.,
1212 Ocean Avenue,
Brooklyn, N. Y.

(A497) FANT, A. T.,
Presbyterian College of South Carolina,
Clinton, S. C.

(R203) FARWELL, H. W.,
Department of Physics,
Columbia University,
New York, N. Y.

(R184) FERGUSON, W. F. C.,
New York University,
Washington Square,
New York, N. Y.

(A224) FERNER, ROY Y.,
Investment Building,
Washington, D. C.

(R158) FERREE, C. E.,
Bryn Mawr College,
Bryn Mawr, Pa.

(R159) Ferree, Gertrude Rand,
Bryn Mawr College,
Bryn Mawr, Pa.

(R374) Finn, Alfred N.,
Bureau of Standards,
Washington, D. C.

(A569) Fleming, A. P. M.,
Metropolitan Vickers Electric Co.,
Trafford Park,
Manchester, England.

(R33) Foote, Paul D.,
Mellon Institute,
Pittsburgh, Pa.

(R129) Forsythe, W. E.,
Nela Park,
Cleveland, Ohio.

(R469) Foster, Leon V.,
8 Delmar Road,
Rochester, N. Y.

(R7) Frederick, C. W.,
Hawk-Eye Works,
Eastman Kodak Company,
1447 St. Paul Street,
Rochester, N. Y.

(R404) Freeman, John R.,
815 Grosvenor Bldg.,
Providence, R. I.

(R178) Frehafer, M. Katherine,
Goucher College,
Baltimore, Md.

(R253) Fricke, Hugo,
3041 Fairfax Road,
Cleveland Heights, Ohio.

(R434) Friedenwald, J. S.,
1212 Eutaw Place,
Baltimore, Md.

(R277) Fulcher, Gordon S.,
Corning Glass Works,
Corning, N. Y.

(A318) Fulweiler, W. H.,
319 Arch Street,
Philadelphia, Pa.

(R496) Gaehr, P. F.,
Aurora, N. Y.

(AC255) Gaertner Scientific Corp.,
1201 Wrightwood Avenue,
Chicago, Ill.

(R8) Gage, H. Phelps,
Corning Glass Works,
Corning, N. Y.

(R137) Gage, O. A.,
115 Steuben Street,
Painted Post, N. Y.

(R143) Gale, Henry G.,
Ryerson Physical Lab.,
University of Chicago,
Chicago, Ill.

(R126) Gardner, I. C.,
Bureau of Standards,
Washington, D. C.

(R204) George, E. F.,
Physics Department,
Texas Technical College,
Lubbock, Texas.

(R557) Gibbs, R. C.,
Department of Physics,
Cornell University,
Ithaca, N. Y.

(R97) Gibson, K. S.
Bureau of Standards,
Washington, D. C.

(R498) Gilchrist, L.,
Department of Physics,
University of Toronto,
Toronto, Canada.

(R366) Gliddon, Gordon H.,
Wilder Laboratory,
Dartmouth College,
Hanover, N. H.

(A362) deGraaff, Antonius,
Philips Glow Lampworks, Ltd.,
Eindhoven, Holland.

(R55) Gradle, Harry,
58 E. Washington St.,
Chicago, Ill.

(R254) Gray, Arthur W.,
29 Park Place,
Newark, Delaware.

(A103) Green, Henry,
16 Edgewood Place,
Scarsdale, N. Y.

(R189) Grondahl, L. O.,
Union Switch & Signal Company,
Swissvale, Pa.

(H9) Hale, George E.,
Mt. Wilson Observatory,
Pasadena, Calif.

(A559) Hall, George L.,
198 W. Emerson St.,
Melrose, Mass.

(A453) HALL, VINCENT C.,
3 Kodak Park,
Rochester, N. Y.

(R115) HAM, W. R.,
Pennsylvania State College,
State College, Pa.

(R431) HAMER, RICHARD,
1318 Wightman St.,
Squirrel Hill Station,
Pittsburgh, Pa.

(R399) HAMILTON, W. F.,
101 Chestnut St.,
Louisville, Ky.

(R172) HARDY, ARTHUR C.,
Mass. Institute of Tech.,
Cambridge 39, Mass.

(A414) HARRINGTON, ELMER A.,
Bureau of Standards,
Washington, D. C.

(A499) HARRIS, SYLVAN,
66 Prospect St.,
East Orange, N. J.

(R258) HARRISON, GEORGE R.,
Department of Physics,
Leland Stanford Jr. University,
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Camden Road,
London, N. W. 1, England.

(R260) TYNDALL, E. P. T.,
Department of Physics,
University of Iowa,
Iowa City, Iowa.

(R162) UHLER, H. S.,
Department of Physics,
Yale University,
New Haven, Conn.

(A521) ULREY, C. T.,
Research Dept.,
Westinghouse Lamp Co.,
Bloomfield, N. J.

(R112) VALASEK, J.,
Department of Physics,
University of Minnesota,
Minneapolis, Minn.

(R179) VANARSDEL, W. B.,
Brown Company, Research Dept.,
Berlin, N. H.

(R476) VAN VLECK, J. H.,
700 - 10th Ave. S. E.,
Minneapolis, Minn.

(R389) VENABLE, WILLIAM MAYO,
833 North St. Clair St.,
Pittsburgh, Pa.

(R35) WAGNER, A. F.,
U. S. Navy Post Graduate School,
Annapolis, Md.

(R286) WALDNER, AXEL,
Sturevagen 45,
Stocksund, Sweden.

(A550) WALKER, GERALDINE KLINE,
Bureau of Standards,
Washington, D. C.

(R160) WALTERS, FRANCIS M., JR.,
Bureau of Metallurgical Res.,
Carnegie Inst. of Technology,
Pittsburgh, Pa.

(A526) WARNER, EARLE H.,
510 East 4th St.,
Tucson, Arizona.

(R153) WEAVER, E. A.,
326 Main St.,
Winchester, Mass.

(A555) WEAVER, PAUL,
P. O. Drawer C.,
Houston, Texas.

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Columbia University,
New York, N. Y.

(R527) Webster, David L.,
Leland Stanford Jr. University,
Palo Alto, Calif.

(R432) WEIGLE, JEAN JACQUES,
Dept. of Physics,
University of Pittsburgh,
Pittsburgh, Pa.

(A357) WEINHART, HOWARD W.,
61 Dayton St.,
Elizabeth, N. J.

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1531 B Avenue,
Cedar Rapids, Iowa.

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73 Jefferson Road,
Princeton, N. J.

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New York, N. Y.

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Leland Stanford Jr. University,
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(R364) WHITE, WALTER PORTER,
Geophysical Laboratory,
2801 Upton St., N. W.,
Washington, D. C.

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Optical Shop, Navy Yard,
Washington, D. C.

(A558) WICK, FRANCES G.,
Vassar College,
Poughkeepsie, N. Y.

(A529) WILKINS, T. R.,
University of Rochester,
Rochester, N. Y.

(R345) WILLIAMS, HORATIO B.,
College of Physicians & Surgeons,
Columbia University,
New York, N. Y.

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Eastman Kodak Co.,
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Rice Institute,
Houston, Texas.

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872 Hudson Ave.,
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Dept. of Entomology,
University of California,
Berkeley, Calif.

(A522) WOOTEN, B. A.,
Box 784,
Lexington, Va.

(R261) WORTHING, A. G.,
Dept. of Physics,
University of Pittsburgh,
Pittsburgh, Pa.

(RL30) WRIGHT, FRED E.,
Geophysical Laboratory,
2801 Upton St.,
Washington, D. C.

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Nankai College,
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University of Minnesota,
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493 Fairfax Road,
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Ames, Iowa
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Ann Arbor, Mich.
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Edward H. Kraus
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H. C. Rentschler
Irwin Roman
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C. T. Ulrey
Bloomington, Ill.
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Boston, Mass.
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Donald Charles Stockbarger
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Camden, N. J.
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HAMBURG, N. Y.
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Keuffel & Esser Co.
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LUBBOCK, TEXAS
E. F. George
LYNCHBURG, VA.
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T. M. Dahm
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F. L. Cooper
Charles S. Hastings
Louis Williams McKeehan
Carimiro del Rosario
Frank Schlesinger
H. S. Uhler
NEW ORLEANS, LA.
Henry Laurens
NEWARK, DELAWARE
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NEWARK, N. J.
W. T. Anderson, Jr.
William G. Exton
NEWARK, OHIO
Thomas W. Rolph
J. L. Rose
NEWTON CENTRE, MASS.
Frederick W. Ellis
NEW YORK CITY
Conrad Berens, Jr.
Julian Blanchard
David E. Branson
Martin Cohen
Karl K. Darrow
Bergen Davis
C. Davisson
Gano Dunn
Electrical Testing Labs.
H. W. Farwell
W. F. C. Ferguson
Elmer E. Hotaling
Herbert E. Ives
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Edwin F. Kingsbury
George F. Kunz

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Norman Macbeth
W. A. Marrison
Preston S. Millar
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Frank Walter Weymouth

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O. E. Conklin
E. Robert Owen

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J. A. Anderson
M. E. Brenner
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R. A. Millikan
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Edison Pettit
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Leo Behr
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Leeds & Northrup Co.
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S. E. Pond
Thomas S. Stewart
W. F. G. Swann
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Conrad K. Rizer
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F. F. Rupert
Howard W. Russell
L. P. Sieg
Ewart S. Taylerson
E. Ward Tillotson
Wm. Mayo Venable
Francis M. Walters, Jr.
Jean Jacques Weigle
A. G. Worthing

N. S. PITTSBURGH, PA.
Keivin Burns
Heber D. Curtis

POUGHKEEPSIE, N. Y.
Frances G. Wick

PRINCETON, N. J.
K. T. Compton
Philip V. Wells
PROVIDENCE, R. I.
John R. Freeman
READING, PA.
Edwin L. Hettinger
REDLANDS, CALIF.
H. E. Marsh
RICHMOND, VA.
Emory Hill
RIVERDALE, N. Y.
G. Failla
ROCHESTER, MINN.
William L. Benedict
Charles Sheard
ROCHESTER, N. Y.
Fred E. Altman
Carl E. Bahn
Edward Bausch
Bausch & Lomb Optical Co.
Fred M. Bishop
R. E. Burroughs
Gordon A. Chambers
Herbert A. Clark
John G. Capstaff
George Eastman
Floyd C. Fairbanks
Leon V. Foster
C. W. Frederick
Vincent C. Hall
Frederick L. Higgins
M. B. Hodgson
Lewis E. Jewell
L. A. Jones
Henry F. Kurtz
John C. Kurtz
Adolph Lomb
C. E. Kenneth Mees
Lewis L. Mellor
Robert Thomas Morrison
A. J. Newton
Bradford Noyes, Jr.
Fred H. Perrin
Wilbur B. Rayton
Arthur L. Schoen
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Ludwik Silberstein
A. P. H. Trivelli
Clifton M. Tuttle
T. R. Wilkins
Rex B. Wilsey
John C. Wollensak
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Emile R. Cramer
Harvey James Howard
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Jerome Willard Stafford
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SHREVEPORT, LA.
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Lauriston E. Clark
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Wheeler P. Davey
W. R. Ham
SWAMPSCOTT, MASS.
Herbert P. Hollnagel
Elihu Thomson
SWARTHMORE, PA.
Detlev Wulf Bronk
SWISSVALE, PA.
L. O. Grondahl
SYRACUSE, N. Y.
R. A. Porter
E. D. Roe, Jr.
TOWANDA, PA.
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WEST LAFAYETTE, IND.
George W. Sherman, Jr.

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WILLIAMS BAY, WIS.
G. W. Moffitt

WILLIAMSBURG, VA.
Walter Merrymon

WINCHESTER, MASS.
E. A. Weaver

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- Frank Allen
- H. F. Dawes
- Ralph E. DeLury
- L. Gilchrist
- Robert James Lang
- John C. McLennan
- J. K. Robertson
- G. M. Shrum

China
- Ting Supao
- Yu Tai Yao

England
- R. W. Cheshire
- R. S. Clay
- A. P. M. Fleming
- Thomas R. Merton
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- T. Smith
- B. V. Storr
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- Frank Twyman

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- Ch. Fabry
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- Henri Piéron

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- S. Nakamura
- Yoshikatsu Sugiura

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- S. N. Banerji

U. S. S. R.
- A. Joffé

Sweden
- Axel Waldner

Africa
- William H. Hoover

NUMERICAL SYNOPSIS OF MEMBERSHIP

(Sept. 1, 1928.)

Honorary	6
Regular	
Annual payment	302
Life payment	8
Associate Individual	
Annual payment	134
Life payment	None
Associate corporation	6
Total	456

Reports of Officers

REPORT OF THE SECRETARY

(Report of the secretary for calendar year 1927 not ready in time to be included. Should be included in Yearbook for 1929. A partial report has been published, J.O.S.A. and R.S.I *16*, pp. 113–115; Feb., 1928.)

REPORT OF THE TREASURER

For the Period from January 1, 1927 to December 31, 1927

Cash on Hand, January 1 1927		$12,421.75
Receipts:		
Dues	$3,172.50	
Donations	3,000.00	
Interest on Bank Balances	393.39	
Journal Subscriptions on Books Prior to February 15, 1922	212.50	
Advertising	353.00	
Sale of Back Numbers	272.05	
Sale of Colorimetry Reports	8.50	
Miscellaneous	.30	
Total Receipts		7,412.24
		$19,833.99
Disbursements:		
Printing and Stationery	$ 68.22	
Postage	41.00	
Expenses of Meetings	205.09	
Journal Subscriptions since February 15, 1922	174.25	
Traveling	42.64	
Clerical Expense	20.00	
Journal of the Optical Society of America and Review of Scientific Instruments, as per contract with the Association of Scientific Apparatus Makers of the United States	4,800.00	
Purchase of Bonds	4,956.25	
Accrued Interest on Bonds Purchased	32.22	
Miscellaneous	113.98	
Total Disbursements		$10,453.65
Cash on Hand, December 31, 1927		9,380.34
		$19,833.99

I certify that the above report is correct to the best of my knowledge and belief.

Adolph Lomb
Treasurer

Rochester, New York
January 19, 1928

Adolph Lomb, Treasurer,
Optical Society of America,
Rochester, New York.
Dear Sir:

In accordance with your request, we have audited the books of the Optical Society of America for the twelve months ended December 31, 1927.

We hereby certify that the above Statement of Cash Receipts and Disbursements is a true statement for the period from January 1, 1927 to December 31, 1927.

Respectfully submitted,
NARAMORE, NILSE CO.
Auditors

REPORT OF THE BUSINESS MANAGER OF THE JOURNAL OF THE OPTICAL SOCIETY OF AMERICA AND THE REVIEW OF SCIENTIFIC INSTRUMENTS

FOR THE PERIOD FROM JANUARY 1, 1927 TO DECEMBER 31, 1927

Receipts:		
Cash on hand January 1, 1927		$ 2,606.55
In account with the Optical Society of America		4,800.00
In account with the Association of Scientific Apparatus Makers of America—		
Advertising		7,631.87
Miscellaneous Receipts		
Subscriptions	$3,221.17	
Sale of back numbers	458.29	
Reimbursements	31.54	3,711.00
Total		$18,749.42
Disbursements:		
Printer	$9,284.46	
Salaries and Office Expenses	4,870.93	
Miscellaneous	65.37	$14,220.76
Cash on hand December 31, 1927		4,528.66
Total		$18,749.42

The above is a correct statement of accounts to the best of my knowledge and belief.

(Signed) F. K. RICHTMYER, Business Manager
(Per C. M. Terry)

We, the undersigned, duly appointed to audit the accounts of the Journal of the Optical Society of America and Review of Scientific Instruments as at the close of business, December 31, 1927, hereby certify that we have examined the statement of receipts and disbursements, the vouchers, check book and bank book and find them to agree with each other. We, therefore, certify that the above statement is a true statement of the accounts of the Journal of the Optical Society of America and Review of Scientific Instruments as of December 31, 1927.

(*Signed*) H. E. HOWE
H. R. CHILDS
Auditors

APPENDIX 1.

REFERENCES TO PREVIOUSLY PUBLISHED NOTICES, REPORTS, AND MINUTES OF THE OPTICAL SOCIETY OF AMERICA

The purpose of this compilation is to facilitate ready reference to the published records of the society. It attempts to remedy in some measure the irregularities of early records mentioned in the introductory "Advertisement" to this YEARBOOK. This compilation has been made by a very careful and thorough search of the JOURNAL.*

For references to constitution and by-laws and amendments to them, see "Constitution" and "By-Laws" in this YEARBOOK.

For references to Proceedings of Meetings, see "Meetings" under "History" in this YEARBOOK.

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Election of honorary members.
Designation of patrons.
Numerical statements of membership.
Personnel of committees and committee notices.
Advance notices of meetings.
Reports of committees on technical and scientific subjects.

Proposal to organize the society:
Science, p. 238, Feb. 18, 1916.

Notice of organization:
Science, pp. 163–164, August 4, 1916.

General Notice of the Society and its Activities:
Science, pp. 318–320, April, 1921.

* By Mr. J. O. Riley of the Bureau of Standards.

Election of officers:

Science, pp. 163–164, Aug. 4, 1916; J.O.S.A., II–III, p. 48, Jan.-March, 1919; *5*, p. 121, Jan., 1921; J.O.S.A. and R.S.I., *6*, p. 208, March, 1922; *7*, p. 304, April, 1923; *8*, pp. 42, 44, 45, Jan., 1924; *8*, p. 710, May, 1924; *12*, p. 473, May, 1926; *14*, p. 134, Feb., 1927; *16*, pp. 114, 115, Feb., 1928.

Election of Editors:

J.O.S.A. and R.S.I., *8*, p. 38, Jan., 1924; *12*, pp. 473–474, May, 1926; *16*, p. 114, Feb., 1928.

Minutes of the Executive Council:

J.O.S.A. and R.S.I., (Priest), *6*, pp. 93, 94, 95, 96, 97, 98, Jan., 1922; (Priest), *6*, pp. 985–987, Nov., 1922; (Priest), *7*, pp. 209–211, Feb., 1923; (Priest), *8*, pp. 37, 38, Jan., 1924; (Richtmyer), *10*, pp. 283, 284, Mar., 1925; (Richtmyer), *12*, pp. 473, 474, May, 1926; (Bidwell), *14*, pp. 133, 134, Feb., 1927; (Bidwell), *16*, p. 114, Feb., 1928; (Bidwell), *16*, pp. 329–331, May, 1928.

Actions relative to the Journal:

J.O.S.A. and R.S.I., *6*, pp. 1, 2, Jan., 1922; *6*, pp. 94, 96, 97, Jan., 1922; *6*, pp. 986, 987, Nov., 1922; *7*, pp. 210, 211, Feb., 1923; *8*, pp. 37, 38, Jan., 1924; *8*, pp. 42, 43, Jan., 1924; *14*, p. 134, Feb., 1927.

Reports of Secretary:

J.O.S.A. and R.S.I., (Priest), *7*, pp. 144–146, Jan., 1923; (Priest), *8*, pp. 38–43, Jan., 1924; (Priest), *9*, pp. 91–93, July, 1924; (Bidwell), *16*, pp. 113–114, Feb., 1928.

Reports of Treasurer:

J.O.S.A. and R.S.I., *7*, p. 777, Sept., 1923; *8*, pp. 43–44, Jan., 1924; *8*, p. 823, June, 1924; *11*, p. 391, Oct., 1925; *13*, pp, 310–311, Sept., 1926; *14*, p. 478, June, 1927; *16*, pp. 336–337, May, 1928.

Financial Reports of Journal:

J.O.S.A. and R.S.I., *7*, p. 778, Sept., 1923; *8*, p. 824, June, 1924; *11*, p. 392, Oct., 1925; *13*, p. 309, Sept., 1926; *14*, p. 477, June, 1927; *16*, p. 336, May, 1928.

Membership Directories:

Science, pp. 163–164, Aug., 4, 1916. Booklet printed in Dec., 1916, under date of 1917 printed on cover, J.O.S.A. II–III, pp. 48–50, Jan.,-March, 1919, and J.O.S.A. and R.S.I., *8*, pp. 55–75, Jan., 1924. (A corrected reprint of this directory was separately issued under date of March, 1924.) J.O.S.A. and R.S.I., *13*, pp. 59–72, July, 1926.

Election of New Members:

J.O.S.A., *4*, p. 242, July, 1920; *4*, p. 504, Nov., 1920; *5*, pp. 121–122, Jan., 1921; *5*, p. 290, May, 1921; *5*, p. 468, Sept., 1921.

J.O.S.A. and R.S.I., *6*, pp. 93, 94, 95, 96, 98, Jan., 1922; *6*, pp. 415–416, June, 1922; *6*, p. 987, Nov., 1922; *7*, pp. 209–210, Feb., 1923; *8*, pp. 39–41, Jan., 1924; *9*, p. 91, July, 1924; *14*, p. 133, Feb., 1927; *16*, pp. 113–114, Feb., 1928.

Changes of Address of Members:

J.O.S.A., *4*, p. 504, Nov., 1920; *5*, p. 122, Jan., 1921; J.O.S.A. and R.S.I., *5*, p. 290, May, 1921; *5*, p. 468, Sept., 1921; *9*, p. 92, July, 1924.

Resignations:

J.O.S.A. and R.S.I., *7*, p. 145, Jan., 1923; *8*, pp. 37, 39, 41, Jan., 1924; *9*, p. 91, July, 1924; *16*, p. 114, Feb., 1928.

Deaths:

J.O.S.A. and R.S.I., *7*, p. 145, Jan., 1923; *8*, p. 42, Jan., 1924; *9*, p. 92, July, 1924; *16*, p. 114, Feb., 1928.

Transfers From Associate to Regular Membership:

J.O.S.A. and R.S.I., *6*, p. 96, Jan., 1922; *6*, p. 987, Nov., 1922; *8*, p. 37, Jan., 1924; *10*, p. 283, Mar., 1925; *12*, p. 473, May, 1926; *14*, p. 133, Feb., 1927; *16*, p. 114, Feb., 1928.

Election of Honorary Members:

J.O.S.A. and R.S.I., *7*, pp. 209, 210, Feb., 1923.

Designation of Patrons:

J.O.S.A. and R.S.I., *8*, pp. 38, 42, Jan., 1924.

Numerical Statements of Membership:

Science, pp. 163–164, Aug., 4, 1916; J.O.S.A. and R.S.I., *7*, pp. 144–145, Jan., 1923; *8*, pp. 38, 39, Jan., 1924; *8*, p. 75, Jan., 1924; *16*, p. 114, Feb., 1928.

Personnel of Committees and Committee Notices:

J.O.S.A., II–III, p. 48, Jan.-March, 1919; *5*, p. 388, July, 1921; J.O.S.A. and R.S.I., *6*, pp. 96–97, Jan., 1922; *7*, p. 211, Feb., 1923; *7*, p. 304, April, 1923; *7*, pp. 581–582, July, 1923; *8*, p. 38, Jan., 1924; *8*, pp. 710–712, May, 1924; *10*, pp. 453–454, April, 1925; *12*, p. 474, May, 1926; *13*, p. 38, July, 1926; *16*, p. 202, March, 1928; *16*, pp. 329–331, May, 1928.

Advance Notices of Meetings:

2nd Meeting—J.O.S.A., *1*, p. 136, July, 1917.

6th Meeting—J.O.S.A., *5*, p. 5, Advt. Section, July, 1921. Science, p. 70, July, 22, 1921.

7th Meeting—J.O.S.A. and R.S.I., *6*, p. 291, May, 1922; front cover, June, 1922; *6* p. XXXV, Advt. Section, July, 1922; Science, pp. 38–39, July 14, 1922; Science, pp. 219–222, Aug., 25, 1922; J.O.S.A. and R.S.I., *6*, p. 662, Aug., 1922.

8th Annual Meeting—J.O.S.A. and R.S.I., *7*, p. 542, July, 1923; Science, p. 10, July 6, 1923.

9th Annual Meeting—J.O.S.A. and R.S.I., *8*, front cover, June, 1924.

Joint Meeting A.P.S. and O.S.A.—J.O.S.A. and R.S.I., *9*, front cover, Dec., 1924.

10th Annual Meeting—J.O.S.A. and R.S.I., *11*, front cover, July, 1925.

Joint Meeting A.P.S. and O.S.A.—J.O.S.A. and R.S.I., *11*, front cover, Dec., 1925.

11th Annual Meeting—J.O.S.A. and R.S.I., *12*, front cover, June, 1926.

Joint Meeting A.P.S. and O.S.A.—J.O.S.A. and R.S.I., *13*, front cover, Dec., 1926.

12th Annual Meeting—J.O.S.A. and R.S.I., *15*, front cover, July, 1927.

13th Annual Meeting—J.O.S.A. and R.S.I., *16*, front cover, April, 1928; Science, *67*, p. 600, June 15, 1928; Science, *68*, p. 57, July 20, 1928; J.O.S.A. and R.S.I., *17*, p. 81, July, 1928; Trans. I.E.S. *23*, p. 599, July, 1928.

REPORTS OF COMMITTEES ON TECHNICAL AND SCIENTIFIC SUBJECTS.

(*All references are to the Journal of the Society*)

Visual Sensitometry—J.O.S.A., *4*, pp. 55–79, Mar., 1920.

Colorimetry—*4*, pp. 186–187, May, 1920.

Photometry and Illumination—*4*, pp. 230–235, July, 1920.

Lenses and Optical Instruments—*4*, pp. 236–238, July, 1920.

Pyrometry—*4*, pp. 305–336, Sept., 1920.

Instruments and Methods of Radiometry (Section of Report).—*5*, pp. 259–268, May, 1921.

Spectroradiometry—*5*, pp. 269–278, May, 1921.

Standard Wave Lengths—*5*, pp. 308–332, July, 1921.

Pyrometry, 1920—*5*, pp. 494–512, Nov., 1921.
Standard Wave Lengths—*6*, pp. 135–139, March, 1922.
Colorimetry—J.O.S.A. and R.S.I., *6*, pp. 527–596, Aug., 1922.
On Proposed Translation of Helmholtz (Also list of subscribers.)—*6*, pp. 659–661, Aug., 1922.
Spectroradiometry (Section)—*6*, pp. 1016–1029, Dec., 1922.
Refractometry (Partial Report, Color Correction of an Achromatic Doublet.)—*10*, pp. 39–63, Jan., 1925.
Spectrophotometry—*10*, pp. 169–241, Feb., 1925.
Physical Optics—*10*, pp. 549–560, May, 1925.
Color Terminology (Partial Report, Number of Answers received and Request for Better Cooperation.)—*11*, p. 44, July, 1925.
Radiometry and photometry—*11*, pp. 357–369, Oct., 1925.
Photographic Intensity—*12*, pp. 567–586, June, 1926.
Physical Optics—*12*, pp. 587–611, June, 1926.
Color Terminology Questionnaire (Final Report.)—*13*, pp. 43–57, July, 1926.
Physical Optics—*14*, pp. 103–124, Feb., 1927.
Physical Optics—*16*, pp. 44–61, Jan., 1928.
Physical Optics (Supplementary)—*16*, pp. 301–306, May, 1928.

APPENDIX 2.

AMERICAN ORGANIZATIONS WHOSE INTERESTS AND ACTIVITIES ARE CLOSELY RELATED TO THE INTERESTS AND ACTIVITIES OF THE OPTICAL SOCIETY OF AMERICA

GENERAL ORGANIZATIONS WITH WHICH THE OPTICAL SOCIETY IS AFFILIATED

American Association for the Advancement of Science.

Burton E. Livingston, Permanent Secretary, Smithsonian Institution, Washington, D. C.

(The Optical Society has two representatives on the council, H. E. Ives and F. K. Richtmyer.)

National Research Council.

Vernon Kellogg, Permanent Secretary, National Academy Building, Washington, D. C.

(The Optical Society has a representative on the Division of Physical Sciences, F. E. Wright.)

SPECIALIZED SOCIETIES

(The genesis and propagation of radiant energy, the effects which it suffers and some of the effects which it produces fall generally within the domain of physics. *To this extent*, optics may be regarded as a branch of physics. However, many of the effects produced by radiant energy fall distinctly within one or another of the categories of chemistry, biology or psychology. Ophthalmology is the optical branch of medicine. Optometry is a special technic of optics. Illuminating engineering is a branch of applied optics. Optical technics are the principle tools of astronomy; and, on the other hand, optics owes some of its most important data to astronomy. Optical technics are important tools in physics, chemistry, mineralogy, biology, medicine, and many branches of technology. Hence, the activities of the Optical Society are closely related to specialized activities in many other organizations. Results of research may often be published with equal propriety in the Journal of the Optical Society or the publications of one or another of these organizations. There are optical specialists in all sciences; and the Optical Society affords a common meeting ground for them. The interests of science will be served by the cultivation of closer relations between the Optical Society and these organizations. As a step in this direction, we publish this list of societies. It does not purport to be complete; members are invited to suggest other societies for inclusion in the next YEARBOOK.)

American Physical Society—

President: K. T. Compton, Princeton University, Princeton, N. J.

Secretary: H. W. Webb, Columbia University, New York, N. Y.

Official Journal: *Physical Review*, John T. Tate, Editor, University of Minnesota, Minneapolis, Minnesota.

(It is customary for the Physical Society and the Optical Society to hold a joint meeting in New York in February each year.)

American Psychological Association—

President: Edwin G. Boring, Harvard University, Cambridge, Mass.

Secretary: Samuel W. Fernberger, University of Pennsylvania, Philadelphia, Pa.

Official Publications: *Psychological Review*, Howard C. Warren, Editor, Princeton University. *Psychological Bulletin*, S. W. Fernberger, Editor, University of Pennsylvania. *Journal of Experimental Psychology*, Madison Bentley, Editor, University of Illinois. *Psychological Index*, Walter S. Hunter, Editor, Clark University. *Psychological Abstracts*, Walter S. Hunter, Editor, Clark University. *Psychological Monographs*, Raymond Dodge, Editor, Yale University.

American Chemical Society—
President: S. W. Parr, Urbana, Ill.
Secretary: Chas. L. Parsons, Mills Building, Washington, D. C.
Official Publications:
Journal of American Chemical Society, Arthur B. Lamb, Editor, Harvard University, Cambridge, Mass.
Chemical Abstracts, E. J. Crane, Editor, Ohio State University, Columbus, Ohio.
Industrial and Engineering Chemistry, H. E. Howe, Editor, Mills Building, Washington, D. C.
Technologic Monographs, H. E. Howe, Editor, Mills Building, Washington, D. C.
Scientific Monographs, W. A. Noyes, Editor, University of Illinois, Urbana, Ill.

American Astronomical Society—
President: George C. Comstock, Beloit, Wis.
Secretary: Raymond S. Dugan, Observatory House, Princeton, N. J.

Illuminating Engineering Society—
President: M. C, Huse, 1000 Chestnut St., Philadelphia, Pa.
General Secretary: A. B. Oday, 29 West 39 St., New York, N. Y.
Official Journal:
Transactions of the Illuminating Engineering Society, E. J. Dailey, Chairman Committee on Editing and Publication, 420 Lexington Avenue, New York, N. Y.

Society of Motion Picture Engineers—
President: Willard B. Cook, 35 West 42nd Street, New York, N. Y.
Secretary: L. C. Porter, 5th and Sussex Streets, Harrison, N. J.

U. S. National Committee of the International Commission on Illumination—
President: Clayton H. Sharp, Electrical Testing Laboratories, New York, N. Y.
Secretary-Treasurer: E. C. Crittenden, Bureau of Standards, Washington, D. C.
(The Optical Society has a representative on the committee, Frank Benford.)

American Ophthalmological Society—
President: Walter E. Lambert, New York, N. Y.
Secretary: Emory Hill, Richmond, Va.
Official Journal:
Transactions American Ophthalmological Society, T. B. Holloway, Editor, 1819 Chestnut St., Philadelphia, Pa.

American Academy of Ophthalmology and Otolaryngology—
President: Luther C. Peter, Chestnut and 20th Streets, Philadelphia, Pa.
Secretary: William P. Wherry, 1500 Medical Arts Building, Omaha, Neb.
Official Journal:
Transactions of the American Academy of Ophthalmology and Otolaryngology, Clarence Loeb, Editor, Chicago Ill.

Section on Ophthalmology of American Medical Association—
Chairman: W. B. Lancaster, 520 Commonwealth Avenue, Boston, Mass.
Secretary: William C. Finnoff, Denver, Colo.
Official Journal:
Transactions of Section on Ophthalmology of A. M. A., Morris Fishbein, Editor, 535 North Dearborn Street, Chicago, Ill.

American Homeopathic Ophthalmological, Otological and Laryngological Society—
201 E. 23rd Street, New York, N. Y.
President: W. J. Blackburn, Dayton, Ohio.
Secretary: Alva Sowers, Chicago, Ill.
Official Journal:
Journal of Ophthalmology, Otology and Laryngology, O. E. Hetrick, Editor, New York, N. Y.

American Academy of Optometry—
232 Delaware Avenue, Buffalo, N. Y.
President: Eugene G. Wiseman.
Secretary: J. Fred Andreae.
Official Journal:
American Journal of Optometry, Carel Koch, Editor, 209 Yeates Building, Minneapolis, Minn.

American Optometric Association, Inc.—
201 Glass Block, Faribault, Minn.
President: Geo. S. Houghton, 312 Little Bldg,. Boston, Mass.
Secretary: Ernest H. Kiekenapp, Faribault, Minn.

New York State Optometric Association, Inc.—
President: Thomas McBurnie, 1215 Bedford Avenue, Brooklyn, N. Y.
Secretary: D. K. Uttal, 2482 Broadway, New York, N. Y.
Official Publication:
Yearbook of the N. Y. S. O. A., D. K. Uttal, Editor, 2482 Broadway, New York, N. Y.

American Society of Zoologists—
President: S. J. Holmes, University of California, Berkeley, Calif.
Secretary: Dwight E. Minnich, Department of Zoology, University of Minnesota, Minneapolis, Minn.
The society does not publish an official journal but many of its members subscribe for and publish in the Journal of Experimental Zoology, R. G. Harrison, Editor, Yale University, New Haven, Conn.

American Physiological Society—
President: Joseph Erlanger, Washington University Medical School, St. Louis, Mo.
Secretary: Walter J. Meek, 2015 Chadbourne Avenue, Madison, Wis.
Official Publication:
American Journal of Physiology, D. R. Hooker, Editor, 19 W. Chase Street, Baltimore, Md.

APPENDIX 3.

FOREIGN ORGANIZATIONS MAINTAINING CLOSE RELATIONS WITH THE OPTICAL SOCIETY OF AMERICA

ENGLAND

THE OPTICAL SOCIETY

President

Dr. R. S. Clay,
The Northern Polytechnic,
Holloway, London, N. 7.

Honorary Secretaries

For Business
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1 Lowther Gardens, Exhibition Road,
South Kensington, London, S. W. 7

For Papers
Mr. W. B. Coutts,
Military College of Science,
Woolwich, London, S. E. 18.

Official Publication

Transactions of the Optical Society,
1 Lowther Gardens, Exhibition Road,
South Kensington, London, S. W. 7.

Dr. John S. Anderson, Editor,
National Physical Laboratory,
Teddington, Middlesex

By action of the council of the Optical Society, London, the president of the Optical Society of America is, *ex officio*, an honorary fellow of the London society; and by like action of the council of the Optical Society of America, the president of the London society is an *ex officio* honorary member of the American society. (Report of Council, Optical Society, London, Feb., 10, 1927, p. VII, No. 5, *28*, Trans. Op. Society, London, 1926-27.)

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L'INSTITUT D'OPTIQUE

Director General

Prof. Ch. Fabry

Official Publication

Revue d'Optique
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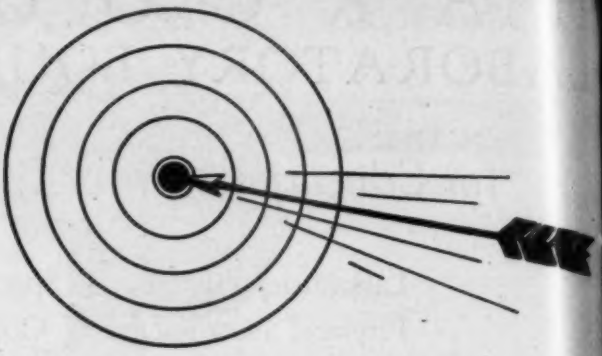

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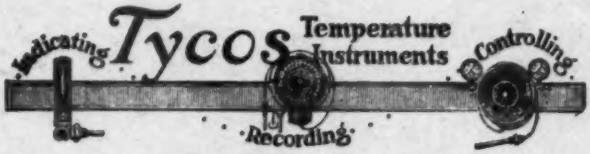

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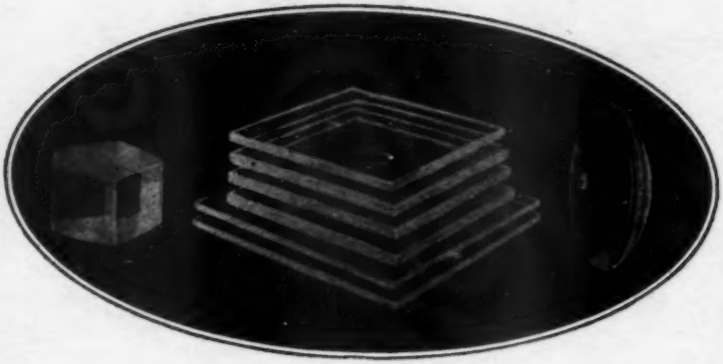

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